

# JVC

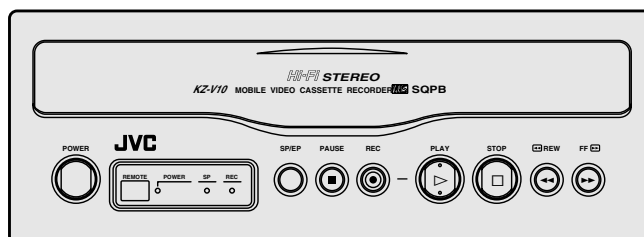
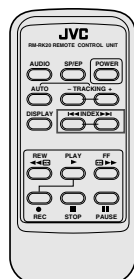
# SERVICE MANUAL

## MOBILE VIDEO CASSETTE RECORDER

### KZ-V10J/MV

#### Area Suffix

J ---- Northern America



#### Comparison table

Item	KZ-V10J	KZ-V10J/MV
Remote controller	Used	Not used

This service manual is composed only of the different points.  
Please refer to the issued service manual (Issue No.49466 KZ-V10J) for other items.

## Contents

Safety precaution .....	1-2
Difference table .....	1-2
Section 5 Parts list .....	5-1
5.1 Cabinet and chassis assembly <M2> .....	5-1
5.2 Mechanism assembly <M4> .....	5-3,4

# Safety precaution

**CAUTION** Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.

The following table indicate main different points between models KZ-V10J and KZ-V10J/MV.

ITEM	MODEL	KZ-V10J	KZ-V10J/MV
INSTRUCTIONS		USED	NOT USED
WARRANTY CARD		USED	NOT USED
RM CABLE		USED	NOT USED
REMOTE CONTROLLER		USED	NOT USED

The following tables indicate different parts number between models KZ-V10J and KZ-V10J/MV.

Packing and accessory assembly <M1>

REF. NO	ITEM	MODEL	KZ-V10J	KZ-V10J/MV
101	PACKING CASE		LP30421-001A	LP30421-011A
105	RM CABLE		QAM0113-001	—
106	IR RECEIVER		LV40177-001A	—
107	SHEET(A),X2		LP40176-001A	—
108	SHEET(B),X2		LP40177-001A	—
109	BATTERY,X2		R6PRPA-2ST	—
110	POLY BAG		QPC02503530P	—
111	INST BOOK		VNN3802-631	—
112	INST BOOK(CONNECTION MANUAL)		VNN3802-T631	—
113	SER.NET CARD		BT-20071B	—
114	USERS CARD		VNA1001-030	—
115	TOLL FREE CARD		BT-20137	—
116	WARRANTY CARD(USA ONLY)		BT-51009-3	—
	WARRANTY CARD(CANADA ONLY)		BT-52001-4	—
117	INST BOOK(CAUTION)		LPT0040-002A	—
118	REMOTE CONTROLLER		LP30180-003B	—
118A	BATTERY CASE		LP40068-001A	—
122	BRACKET,X2		LP30137-001B	—
124	CAUTION		LPT0040-003A	—

Cabinet and chassis assembly <M2>

REF. NO	ITEM	MODEL	KZ-V10J	KZ-V10J/MV
150	FRONT PANEL ASSY		LP20101-001H	*LP20101-001K
150A	CASSETTE DOOR		LP20156-001C	*LP20156-001D
150B	TORSION SPRING		PQ46448	*PQ46448-2
154	SPECIAL SCREW,TOP/BOTTOM		LP40173-001A,(X2)	#LP40173-001A,(X4)
159D	COLLAR ASSEMBLY		LP40028-001A	*LP40572-001A
159E	ROTOR ASSEMBLY		QAR0002-001	*QAR0002-003
159J	SCREW,X2		QYSPSP2606Z	*QYSPSPH2606Z
159M	COMPRES.SPRING		LP30004-005A	*LP30004-014A
164	SCREW,CASS.HOUSING		SPST2606Z,(X2)	*SDST2610Z,(X1)
167	SCREW,X2,CASSETTE HOUSING		SDST3008Z	*QYTDST3010Z
168	SPRING COVER,CASS.HOUSING		LP40154-001A,(X2)	—
170	SCREW,SWITCH BRACKET		SDSP2003Z	*QYSPSPT2035M
173	SCREW,CASSETTE HOUSING		—	*SPST2606Z
174	WASHER		—	*WLS2000N
175	LOCK WASHER,X5		—	*WLS3000N
176	CASSETTE HOUSING ASSY		PUS29724E	*PUS29724G
176B	SPRING COVER,CASS.HOUSING		—	*LP40154-001A
WR2	FFC WIRE,FRONT BOARD		PW30802-1412	*WJT0016-001A

**Notes :** Mark — is not used.

Mark : \* reference model was also changed.

Mark : # is missing for KZ-V10J.

### Mechanism assembly <M4>

REF. NO	ITEM	MODEL	KZ-V10J	KZ-V10J/MV
6	TENSION ARM ASSEMBLY		PQ46303A-8	*PQ46303B-8
17	SPACER		PQM30018-79	*PQM30018-76
21	REEL ASSEMBLY(TAKE UP)/REEL DISK ASSEMBLY(TAKE UP)		PQ46562B	*PQ46551B
24	CLUTCH UNIT(SUPPLY)		PQ46316C-6	*PQ46316F
26	GUIDE ARM ASSEMBLY		PQ46325C-9	*PQ46325D
35	POLE BASE ASSEMBLY(SUPPLY)		PQ46595B-5	*PQ46595C
36	POLE BASE ASSEMBLY(TAKE UP)		PQ46331C	*PQ46331F
43	CONTROL BRACKET		PQ35138-1-2	*PQ35138-3
45	CONTROL PLATE		LP10004-001C	*LP10004-001E
48	SCREW		SPST2606Z,(X1)	*SPST2606Z,(X2)
50	LEVER ASSEMBLY		PQ46342D-10	*PQ46342B-10
56	SLIDE PLATE		PQ11659-1-14	*PQ11659-2
61	LOADING MOTOR		PU60628-3-2	*QAR0023-001
68	CAPSTAN MOTOR		PU61487-2-3	*PU61487-2-6
69	SUB DECK ASSEMBLY		PQ46347D-17	*PQ46347F-17
73	TENSION SPRING,CAPSTAN BRAKE		PQM30001-384101	*LP30003-005A
74	CHANGE ARM ASSEMBLY		PQ46353A-2	*PQ46353B
76	TENSION SPRING		—	*PQM30001-386
79	LID GUIDE		PQ35030-1-5	*PQ35030-3
83	ROTARY ENCODER		PU61432-1-1	*PU61432-1-2
84	CONTROL BRACKET 2		—	*PQ35217-1-2
99	MAIN DECK ASSEMBLY		PQ21680L-23	*PQ21680M-24

### Main board assembly <03>

REF. NO	ITEM	MODEL	KZ-V10J	KZ-V10J/MV
PW1	MAIN BOARD ASSY		PB11079D1	PB11079H1
D951	ZENER DIODE		—	*UZ5.6BSB
R931	FUSIBLE RESISTOR		QRZ9005-330X	←
R951	RESISTOR		—	*QRE141J-152
C48	E CAPACITOR		QETC0JM-477	*QETN0JM-477
C703	E CAPACITOR		QETC1CM-106	*QETN1CM-106
C907	E CAPACITOR		QETC1CM-476	*QETN1CM-476
C911	E CAPACITOR		QETC1CM-476	*QETN1CM-476
C915	E CAPACITOR		QETC1CM-476	*QETN1CM-476
C916	E CAPACITOR		QETC1CM-476	*QETN1CM-476
C917	E CAPACITOR		QETC1CM-107	*QETN1CM-107
C920	E CAPACITOR		QETC1CM-476	*QETN1CM-476
TB1	TERMINAL BOARD ASSY		LP30151-001B	LP30151-005A
OT3	SCREW,J4		SPSF3010M,(X1)	*SPSF3010M,(X2)
OT5	#500SPACER0.01,X2		—	*PU59915-105
OT6	#500SPACER0.01,X701		—	*PU59915-105
OT7	#500SPACER0.007,X702		—	*PU59915-107
OT8	#500SPACER0.01,R951		—	*PU59915-105
WR1	WIRE ASSY		—	*P210-20A2A2K0K0
WR4	WIRE ASSY		—	*P210-17A2A2K0K0
WR11	WIRE ASSY,R951		—	*QUB321-08A4A6
B1	MG RESISTOR		—	*NRSA02J-0R0X
B2	MG RESISTOR		—	*NRSA02J-0R0X
B3	MG RESISTOR		—	*NRSA02J-0R0X
B13	MG RESISTOR		—	*NRSA02J-0R0X
B403	MG RESISTOR		—	*NRSA02J-0R0X
B708	MG RESISTOR		—	*NRSA02J-0R0X
B709	MG RESISTOR		—	*NRSA02J-0R0X
B801	MG RESISTOR		—	*NRSA02J-0R0X
B901	MG RESISTOR		—	*NRSA02J-0R0X
B1303	MG RESISTOR		—	*NRSA02J-0R0X
B1309	MG RESISTOR		—	*NRSA02J-0R0X
B1311	MG RESISTOR		—	*NRSA02J-0R0X

### Front board assembly <28>

REF. NO	ITEM	MODEL	KZ-V10J	KZ-V10J/MV
PW2	FRONT BOARD ASSY		PB11079D2	*PB11079D2-01
R1211	RESISTOR		QRE141J-332Y	*QRE141J-683Y
R1212	RESISTOR		QRE141J-332Y	*QRE141J-683Y
CN1201	FFC CONNECTOR,(1-14)MAIN		QGF1207F1-14	*QGF1208F1-14

### SW. board assembly <36>

REF. NO	ITEM	MODEL	KZ-V10J	KZ-V10J/MV
PW4	SW BOARD ASSY		PB11079D4	*PB11079D4-01

### LED board assembly <90>

REF. NO	ITEM	MODEL	KZ-V10J	KZ-V10J/MV
PW3	LED BOARD ASSY		PB11079D3	*PB11079D3-01

Notes : Mark — is not used.  
Mark : \* reference model was also changed.  
Mark : ← is same as left.

# Section 5 Parts list

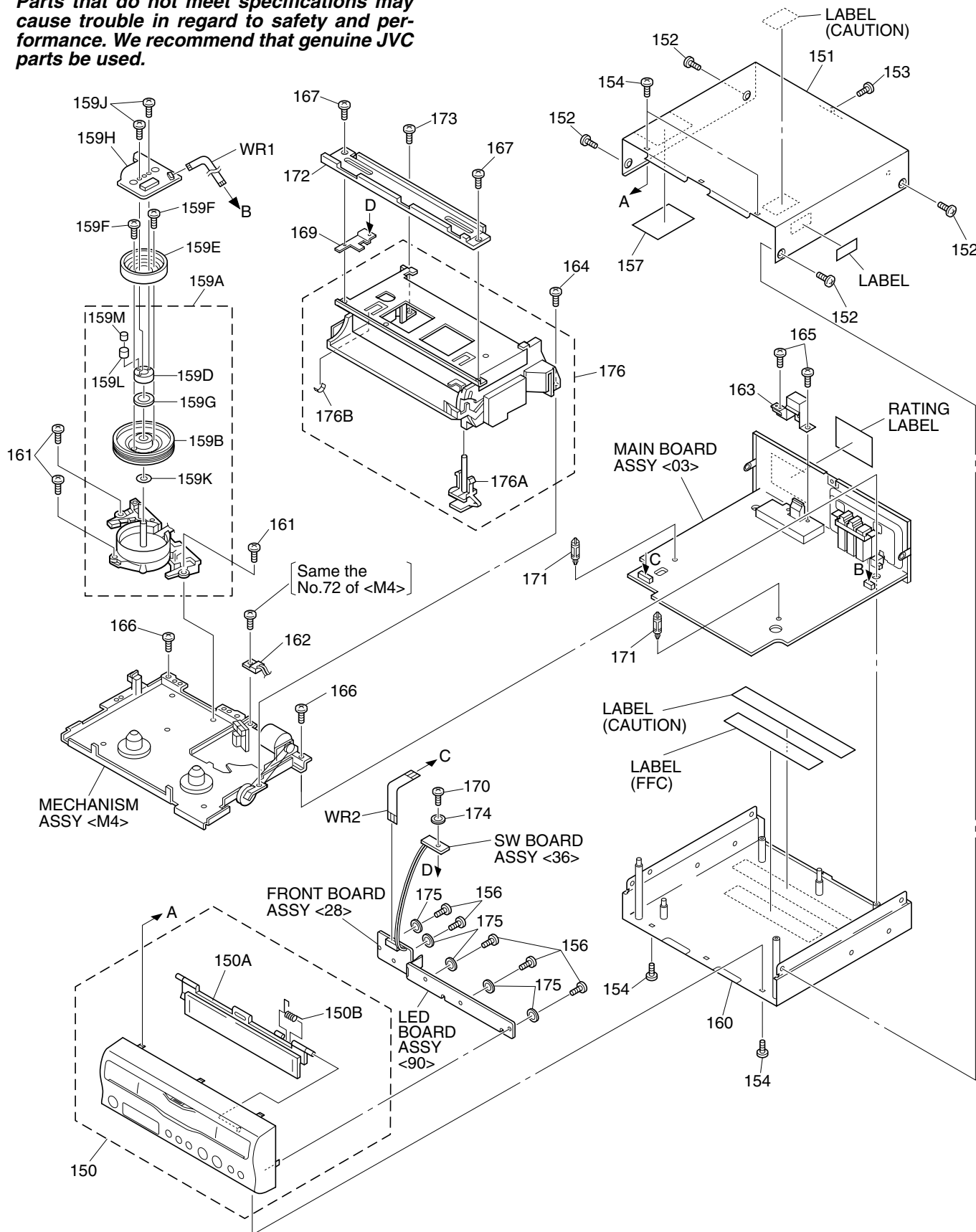
## SAFETY PRECAUTION

Parts identified by the  $\triangle$  symbol are critical for safety. Replace only with specified part numbers.

## 5.1 Cabinet and chassis assembly <M2>

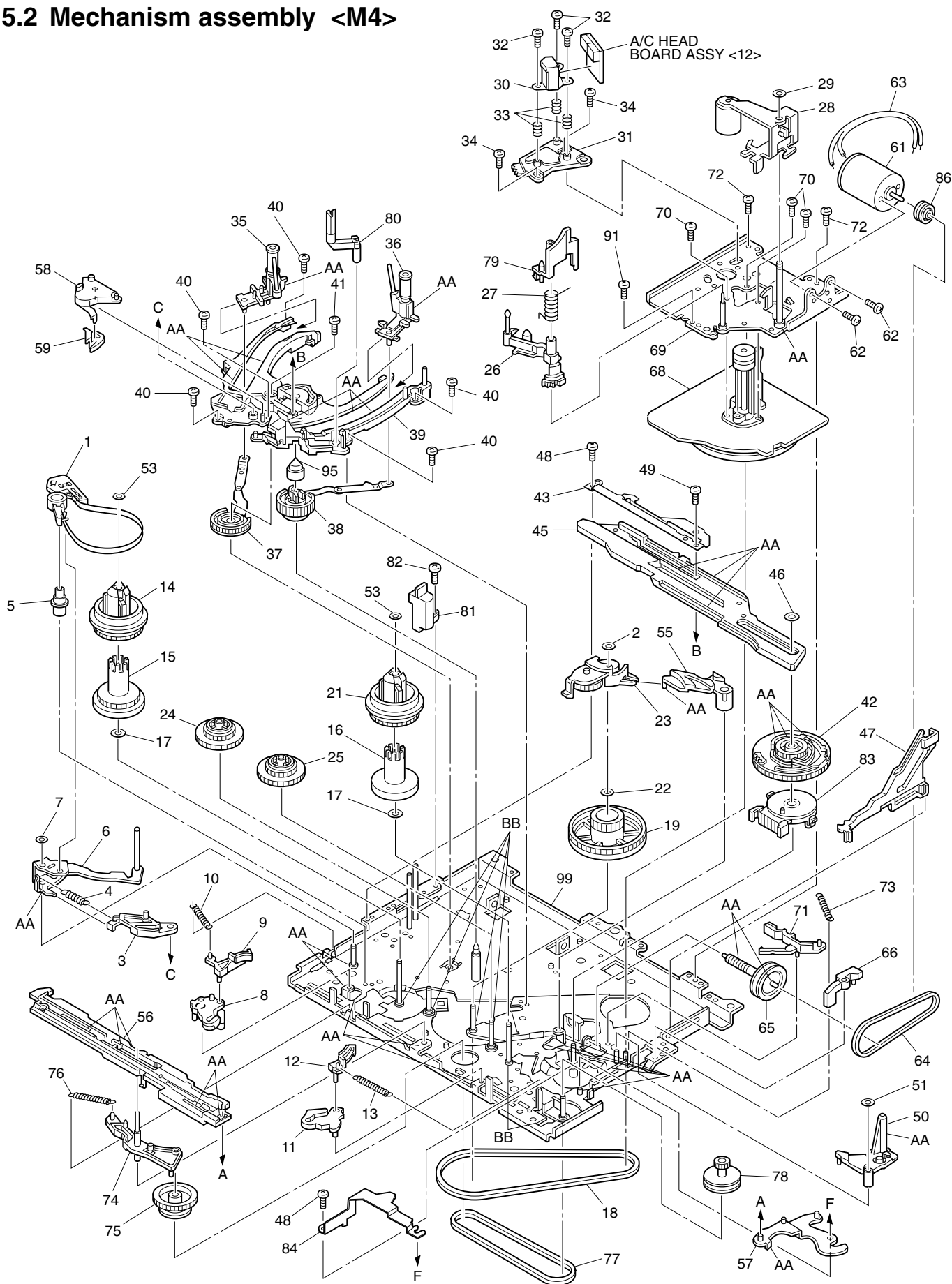
### BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



#	△	REF No.	PART No.	PART NAME, DESCRIPTION	#	△	REF No.	PART No.	PART NAME, DESCRIPTION
*****									
<b>Cabinet and chassis assembly &lt;M2&gt;</b>									
△	150	LP20101-001K		FRONT PANEL ASSY					
	150A	LP20156-001D		CASSETTE DOOR					
	150B	PQ46448-2		TORSION SPRING					
△	151	LP10040-001C		TOP COVER					
	152	SDST3008M		SCREW,X4 TOP COVER(SIDE)					
	153	SDST3008M		SCREW,TOP COVER(REAR)					
	154	LP40173-001A		SPECIAL SCREW,X4 TOP/BOTTOM					
	156	SDSF2608Z		SCREW,X5 FRONT/LED BOARD					
	157	LP30002-017A		SPACER,TOP COVER					
	159A	LP20053-001A		DRUM SUB ASSEMBLY					
	159B	LP20030-001A		UPPER DRUM ASSEMBLY					
	159D	LP40572-001A		COLLAR ASSEMBLY					
	159E	QAR0002-003		ROTOR ASSEMBLY					
	159F	QYSPSP3006Z		SCREW,X2					
	159G	PDM4439		CAP					
	159H	QAR0003-005		STATOR ASSEMBLY					
	159J	QYSPSPH2606Z		SCREW,X2					
	159K	PDM4444-19-2		WASHER					
	159L	LP40323-001A		CONTACT					
	159M	LP30004-014A		COMPRES.SPRING					
△	160	LP10038-001D		BOTTOM CHASSIS ASSY					
	161	SPST2608Z		SCREW,X3 DRUM					
	162	PESC1422		DEW SENSOR					
	163	PQ35385-1-2		SHIELD COVER,PRE					
	164	SDST2610Z		SCREW,CASS.HOUSING					
	165	SDST2606Z		SCREW,X2 PRE					
	166	SDST4010Z		SCREW,X2 MECHANISM					
	167	QYTDST3010Z		SCREW,X2 CASSETTE HOUSING					
	169	LP40079-001A		SWITCH BRACKET					
	170	QYSPSPT2035M		SCREW,SWITCH BRACKET					
	171	PEME0947-01-01		SPACER,X2					
	172	LP30470-001A		STAY,CASSETTE HOUSING					
	173	SPST2606Z		SCREW,CASSETTE HOUSING					
	174	WLS2000N		WASHER					
	175	WLS3000N		LOCK WASHER,X5					
	176	PUS29724G		CASSETTE HOUSING ASSY					
	176A	PQ46359-1-2		CASSETTE SWITCH PIN					
	176B	LP40154-001A		SPRING COVER,CASS.HOUSING					
	WR1	PW30803-0524		FFC WIRE,DRUM					
	WR2	WJT0016-001A		FFC WIRE,FRONT BOARD					

5.2 Mechanism assembly <M4>



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

**NOTE:**The section marked in **AA** and **BB** indicate lubrication and greasing areas.

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
*****				
<b>Mechanism assembly &lt;M4&gt;</b>				
1		LP40006-001C		TENSION BAND ASSEMBLY
2		PQM30017-34		SLIT WASHER
3		PQ35012-1-5		TENSION ARM LEVER
4		PQM30001-385109		TENSION SPRING
5		LP30103-001B		ADJUST PIN
6		PQ46303B-8		TENSION ARM ASSEMBLY
7		PQM30017-47		SLIT WASHER
8		PQ46305B-3		MAIN BRAKE ASSEMBLY (SUPPLY)
9		PQ46306A-6		SUB BRAKE ASSEMBLY (SUPPLY)
10		PQM30001-393		TENSION SPRING
11		PQ46308A-5		MAIN BRAKE ASSEMBLY (TAKE UP)
12		PQ46309A-4		SUB BRAKE ASSEMBLY (TAKE UP)
13		PQM30001-389102		TENSION SPRING
14		PQ46551B		REEL DISK ASSEMBLY (SUPPLY)
15		PQ35436		SLIT DISK (SUPPLY)
16		PQ35437		SLIT DISK (TAKE UP)
17		PQM30018-76		SPACER,X2
18		PQM30003-38		BELT (CAPSTAN)
19		PQ46497B-2		PULLEY ASSY
21		PQ46551B		REEL DISK ASSEMBLY (TAKE UP)
22		PQM30018-69		SPACER
23		PQ46312C-15		IDLER ARM ASSEMBLY
24		PQ46316F		CLUTCH UNIT (SUPPLY)
25		PQ46323A-1		CLUTCH UNIT (TAKE UP)
26		PQ46325D		GUIDE ARM ASSEMBLY
27		PQ46326-2		TORSION SPRING
28		PQ46327A-4		PINCH ROLLER ARM ASSEMBLY
29		PQM30017-24		SLIT WASHER,P LEVER
30		PEHE0182		AUDIO CONTROL HEAD
31		PQ35206-1-3		HEAD BASE
32		PQ43687A		SCREW,X3
33		PQM30002-192		COMPRESSION SPRING,X3
34		SDSP2604Z		SCREW,X2
35		PQ46595C		POLE BASE ASSEMBLY (SUPPLY)
36		PQ46331F		POLE BASE ASSEMBLY (TAKE UP)
37		PQ46332B-3		LOADING ARM ASSEMBLY (SUPPLY)
38		PQ46337C		LOADING ARM ASSEMBLY (TAKE UP)
39		PQ11657-1-9		GUIDE RAIL
40		SPST2608Z		SCREW,X5
41		SDST2612Z		SCREW
42		LP20003-001A		CONTROL CAM
43		PQ35138-3		CONTROL BRACKET
45		LP10004-001E		CONTROL PLATE
46		PQM30017-8		SLIT WASHER
47		PQ21685-2-10		PINCH PLATE
48		SPST2606Z		SCREW,X2
49		SPSF2608M		SCREW
50		PQ46342B-10		LEVER ASSEMBLY
51		PQM30017-8		SLIT WASHER
53		PQM30017-47		SLIT WASHER,X2
55		PQ35026-1-7		IDLER LEVER
56		PQ11659-2		SLIDE PLATE
57		LP40014-001A		CHANGE LEVER ASSEMBLY
58		PQ21686-1-3		TAKE UP LEVER
59		PQ46345-1-2		TAKE UP HEAD
61		QAR0023-001		LOADING MOTOR
62		SPSP3003Z		SCREW,X2

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
63		PW30101-80AJ632		WIRE ASSY
64		LP30005-002A		BELT
65		PQ46395B		WORM GEAR ASSEMBLY
66		PQ21699-1-2		WORM BEARING
68		PU61487-2-6		CAPSTAN MOTOR
69		PQ46347F-17		SUB DECK ASSEMBLY
70		SPSG2608Z		SCREW,X3
71		PQ46356C-4		CAPSTAN BRAKE ASSEMBLY
72		SPST2606Z		SCREW,X2
73		LP30003-005A		TENSION SPRING,CAPSTAN BRAKE
74		PQ46353B		CHANGE ARM ASSEMBLY
75		PQ46354		CHANGE GEAR
76		PQM30001-386		TENSION SPRING
77		PQM30003-40		BELT
78		LP40008-001B		CASSETTE GEAR
79		PQ35030-3		LID GUIDE
80		LP20032-001A		LED PRISM
81		PEHE0237		FULL ERASE HEAD
82		SDST2610Z		SCREW
83		PU61432-1-2		ROTARY ENCODER
84		PQ35217-1-2		CONTROL BRACKET 2
86		PQ43546-1-2		MOTOR PULLEY
91		SDSP2604Z		SCREW
95		PQ46767-1-2		GUIDE CAP
99		PQ21680M-24		MAIN DECK ASSEMBLY



VICTOR COMPANY OF JAPAN, LIMITED  
PERSONAL & MOBILE NETWORK BUSINESS UNIT. 10-1,1Chome,Ohwatari-machi,Maebashi-city,Japan



# JVC

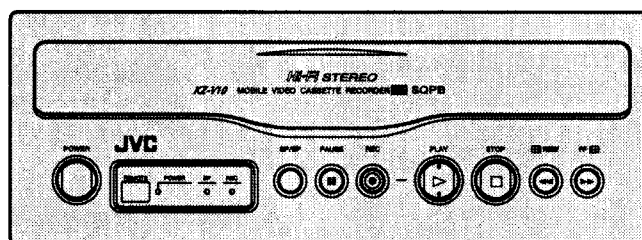
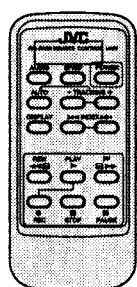
## SERVICE MANUAL

### MOBILE VIDEO CASSETTE RECORDER

# KZ-V10J

#### Area Suffix

J ----- U.S.A.



*Hi-Fi*  
**VHS**

## Specifications

### General

- Power supply : DC12V (11-16V allowable) Negative ground
  - Dimensions : 10-1/4 "x3-3/4" x10-11/16" (259 x 94 x 270 mm)  
(width x height x depth)
  - Mass : 7.1 lbs (3.2 kg)
  - Allowable working temperature : 0°C to + 40°C (32°F to 72°F)
  - Allowable relative humidity : 35 % to 80 %
  - Allowable conservation temperature : -20°C to +60°C (12°F to 92°F)
- Video
- Recording/playback system : VHS format (with SQPB), Hi-Fi 4-heads helical scan
  - Video signal : NTSC standard signal
- Audio
- Recording system : VHS stereo Hi-Fi audio
  - Audio track : 2 Hi-Fi audio channels and 1 normal audio channel
- Remote control unit : A code  
(A code and B code are switchable automatically in the main unit.)

Design and specifications subject to change without notice.

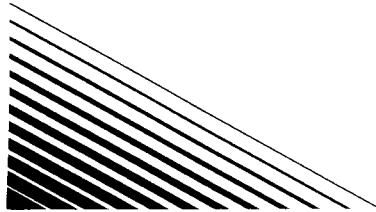


## CAUTION

Burrs formed during molding may be left over on some parts of the chassis.  
Therefore, pay attention to such burrs in the case of preforming repair of this system.

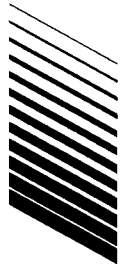
## TABLE OF CONTENTS

Section	Title	Page	Section	Title	Page
<b>INSTRUCTIONS</b>					
<b>1. DISASSEMBLY</b>					
1.1	DISASSEMBLY FLOW CHART .....	1-1	2.6.3	Rotary Encoder,Change Lever,Control Cam .....	2-13
1.2	HOW TO READ THE DISASSEMBLY AND ASSEMBLY .....	1-1	2.6.4	Slide Plate .....	2-13
1.3	DISASSEMBLY/ASSEMBLY METHOD .....	1-1	2.6.5	Control Plate .....	2-13
1.4	CASSETTE HOUSING INSTALLATION .....	1-4	2.7	COMPATIBILITY ADJUSTMENT .....	2-14
1.5	SERVICE POSITION .....	1-4	2.7.1	Checking/Adjustment of FM Waveform Linearity .....	2-14
1.5.1	How to take out the Mechanism and Main board assemblies .....	1-4	2.7.2	Checking/Adjustment of the Height and Tilt of the Audio Control Head .....	2-15
1.6	MECHANISM SERVICE MODE .....	1-6	2.7.3	Checking/Adjustment of the Audio Control Head Phase (X-Value) .....	2-15
1.6.1	How to set the "MECHANISM SERVICE MODE" .....	1-6	2.7.4	Checking/Adjustment of the Tension Pole position .....	2-16
1.7	EMERGENCY DISPLAY FUNCTION .....	1-7	<b>3. ELECTRICAL ADJUSTMENT</b>		
1.7.1	How to display record of an emergency faults .....	1-7	3.1	PRECAUTION .....	3-1
1.7.2	Detail of emergency faults .....	1-7	3.1.1	Required test equipment .....	3-1
1.7.3	How to clear emergency record .....	1-7	3.1.2	Required adjustment tools .....	3-1
<b>2. MECHANISM ADJUSTMENT</b>			3.1.3	Color bar signal,color bar pattern .....	3-1
2.1	PREPARATION .....	2-1	3.2	SERVO CIRCUIT .....	3-2
2.1.1	Precautions .....	2-1	3.2.1	PB switching point .....	3-2
2.1.2	Check without cassette housing assembly .....	2-1	3.2.2	Slow tracking preset .....	3-2
2.1.3	Manual removal of loaded tape .....	2-1	3.3	VIDEO CIRCUIT .....	3-3
2.1.4	Test Equipment .....	2-2	3.3.1	Auto picture .....	3-3
2.2	MAIN MECHANISM PARTS .....	2-2	<b>4. CHARTS AND DIAGRAMS</b>		
2.2.1	Cleaning .....	2-3	NOTES OF SCHEMATIC DIAGRAM .....		
2.2.2	Lubrication .....	2-3	CIRCUIT BOARD NOTES .....		
2.3	INSPECTION AND MAINTENANCE .....	2-4	4.1	BOARD INTERCONNECTIONS .....	4-3
2.3.1	Suggested servicing schedule for main components .....	2-4	4.2	SYSTEM CONTROL BLOCK DIAGRAM .....	4-5
2.4	DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM .....	2-4	4.3	VIDEO BLOCK DIAGRAM .....	4-7
2.4.1	Precaution before disassembling mechanism .....	2-4	4.4	AUDIO BLOCK DIAGRAM .....	4-9
2.4.2	How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE) .....	2-4	4.5	VIDEO/N.AUDIO SCHEMATIC DIAGRAM .....	4-11
2.5	MAIN PARTS REPLACEMENT OF MECHANISM .....	2-4	4.6	FMA SCHEMATIC DIAGRAM .....	4-13
2.5.1	Pinch Roller Arm Assembly .....	2-4	4.7	SYSCON SCHEMATIC DIAGRAM .....	4-15
2.5.2	A/C Head .....	2-5	4.8	SWITCHING REGULATOR SCHEMATIC DIAGRAM .....	4-17
2.5.3	Pinch Plate .....	2-5	4.9	FRONT, LED, SW SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS .....	4-19
2.5.4	Loading Motor .....	2-6	4.10	MAIN AND A/C HEAD CIRCUIT BOARDS .....	4-21
2.5.5	Lever Assmely,Sub Deck Assembly,Capstan Motor .....	2-6	4.11	REMOTE CONTROL SCHEMATIC DIAGRAM .....	4-25
2.5.6	Control Bracket .....	2-7	<b>5. PARTS LIST</b>		
2.5.7	Slit disk (take-up) .....	2-7	5.1	PACKING AND ACCESSORY ASSEMBLY <M1> .....	5-1
2.5.8	Control Plate .....	2-7	5.2	CABINET AND CHASSIS ASSEMBLY <M2> .....	5-2
2.5.9	Sub Brake(take-up),Control Cam .....	2-8	5.3	MECHANISM ASSEMBLY <M4> .....	5-4
2.5.10	Slide Plate .....	2-8	5.4	ELECTRICAL PARTS LIST .....	5-6
2.5.11	Change Lever,Rotary Encoder .....	2-8	MAIN BOARD ASSEMBLY <03> .....		
2.5.12	Sub Brake (supply),Tension Band Assembly, Tension Arm Assembly, Take-up Lever Assembly, Slit Disk(supply) .....	2-9	AUDIO CONTROL BOARD ASSEMBLY <12> .....		
2.5.13	Take-up Head,Tension Arm Lever .....	2-9	FRONT BOARD ASSEMBLY <28> .....		
2.5.14	Guide Rail .....	2-10	SW BOARD ASSEMBLY <36> .....		
2.5.15	Stator Assembly .....	2-10	LED BOARD ASSEMBLY <90> .....		
2.5.16	Rotor Assembly .....	2-10	<b>6. TECHNICAL INFORMATION</b>		
2.5.17	Upper Drum Assembly .....	2-11	6.1	SYSCON CIRCUIT .....	6-1
2.6	CHECKUP AND ADJUSTMENT OF MECHANISM PHASE .....	2-12	6.1.1	Syscon CPU pin function (IC701) 1/2 .....	6-1
2.6.1	Precaution .....	2-12	6.1.2	Syscon CPU pin function (IC701) 2/2 .....	6-2
2.6.2	Loading Arm Assembly (supply,take-up) .....	2-12			



# JVC

KZ-V10

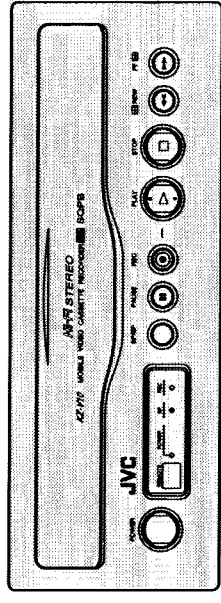
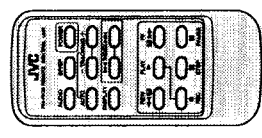


## MOBILE VIDEO CASSETTE RECORDER GRABADORA DE VIDEOCASSETTE MÓVIL MAGNETOSCOPE MOBILE

# KZ-V10

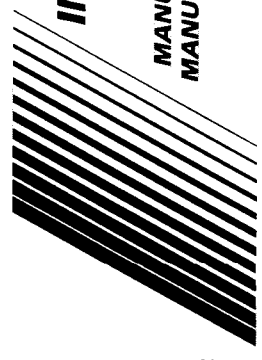
ENGLISH  
ESPAÑOL  
FRANÇAIS

**JVC**  
VICTOR COMPANY OF JAPAN, LIMITED



Hi-Fi VHS

For installation and connections, refer to the separate manual.  
Para la instalación y las conexiones, refiérase al manual separado.  
Pour l'installation et les raccordements, se référer au manuel séparé.



## INSTRUCTIONS

MANUAL DE INSTRUCCIONES  
MANUEL D'INSTRUCTIONS

**For customer Use:**  
Enter below the serial No. which is located on the rear of cabinet. Retain this information for future reference.

Model No. **KZ-V10**

Serial No. \_\_\_\_\_


Printed in Japan  
0398YSV\*0Z\*0Z

VNN3802-631  
[J]


**Dear Customer,**

Thank you for purchasing the JVC VHS video cassette recorder. Before use, please read the safety information and precautions contained in the following pages to ensure safe use of your new VCR.

## CAUTIONS



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### WARNING:

**TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.**

### CAUTION:

This video cassette recorder should be used with DC 12V only. To prevent electric shocks and fire hazards, DO NOT use any other power source.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

"Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada."

## VHS SQPB

- Cassettes marked "VHS" or "S-VHS" can be used with this video cassette recorder. However, S-VHS recording is not possible with this model.
- This model is equipped with SQPB (S-VHS QUASI PLAYBACK) that makes it possible to play back S-VHS recordings with regular VHS resolution.

### CAUTION:

Change or modifications not approved by IVC could void user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Table of contents

CAUTIONS .....	2
Features .....	4
Dew sensor circuit .....	4
High temperature sensor circuit .....	4
Tape protection circuit .....	4
ACCESSORIES .....	4
Inserting/removing cassette .....	5
Inserting cassette into recorder .....	5
Removing cassette from recorder .....	5
For protection of important recording .....	5
How to play back VHS-C cassette tape recorded by Video Movie .....	5
For playing back pictures clearly all the time (Use of head cleaning cassette) .....	6
FRONT VIEW .....	7
REAR VIEW .....	8
REMOTE CONTROL UNIT .....	9
How to set batteries in the battery compartment .....	10
Indications on the screen .....	11
Playback .....	12
Playing back .....	12
Fast-forwarding/Rewinding .....	12
Fast-forwarding/Rewinding while looking at picture .....	12
Still playback/Frame-to-frame playback /Slow playback .....	12
Repeated playback .....	12
Search playback .....	13
Playing back from the beginning of each program-Search playback .....	13
How to choose (specify) the address (index) of a program .....	13
Connection to other apparatus	
Connection to Mobile Color Monitor System KV-M65 .....	14
Connection to a video camera .....	15
Troubleshooting .....	16
Specifications .....	16

## Features

- 4-heads stereo Hi-Fi video cassette recorder
- Cassette door with danger preventive dustproof cover
- Mountable in either vertical or horizontal posture thanks to the highly reliable vibration-resistant design
- Remote sensor unit extends the range to install the video cassette recorder.

### Caution on recording in running

- Recording in running occasionally brings an unsatisfactory result because noise is frequently recorded in running and considerable vibration of the car makes recording disorder.

## Protection circuits

### (self-diagnosing circuits)

This video cassette recorder incorporates some protection circuits inside.

If this video cassette recorder is used as it is dewed, it may damage the tape and video heads.

### Dew sensor circuit

- When the cabin whose temperature is considerably low is rapidly heated or the humidity in the cabin is considerably high, insides of the windshield and cabin windows are sometimes fogged. At the same time, insides of the video cassette recorder mounted on the car is dewed.

- In such the case (dewed condition), the dew sensor circuit functions to stop machine operation with indication of blinking POWER indicator lamp. When the machine falls into such the status, wait for several hours until the POWER indicator lamp stops blinking and lights continuously.

### High temperature sensor circuit

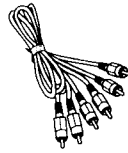
- When the temperature of the machine becomes considerably high, the high temperature sensor circuit functions to stop machine operation with indication of blinking POWER indicator lamp. When the machine falls into such the status, turn off the machine and wait for a while until the POWER indicator lamp stops blinking while leaving it in a cool place to lower the temperature. When turning on the machine again, make sure that the POWER indicator lamp does not blink before starting operation.

### Tape protection circuit

- When the machine remains in the still playback, slow playback or recording pause mode for 5 minutes or longer, the tape protection circuit functions to turn off the machine for protecting the tape.

## ACCESSORIES

- Check to see if the following accessories are supplied with the video cassette recorder.



AV cord  
(5 m/16.7ft. long)



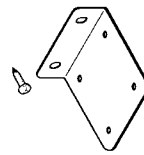
Power cord  
(5m/16.7ft. long)



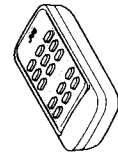
Remote sensor unit  
(5m/16.7ft. long)



Remote control data cord  
(5m/16.7ft. long)



Mounting bracket x 2  
Tapping screw (φ 5 x 20 mm) x 4  
Screw (M5 x 8 mm) x 4  
Velcro tape x 2 sets



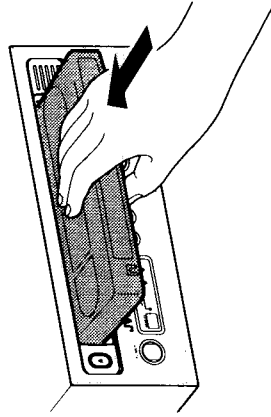
Remote control unit  
(RM-RK20)



AA-size battery x 2  
(for operation check)

## Inserting/removing cassette

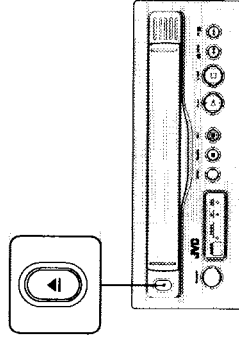
### Inserting cassette into recorder



Open the dust-proof cover and insert a video cassette with the tape side up into the cassette compartment by gently pressing the center part.

- With insertion of a video cassette into the cassette compartment, the recorder is automatically turned on. (Automatic power on function)
- The tape counter is reset to 0:00:00. (Automatic counter reset function)
- When a video cassette whose recording protection tab is broken is inserted, the machine automatically starts playback of the cassette. (Automatic playback function)
- When the car is shaking, it is hard to insert a cassette because the machine is apt to hold the cassette firmly to prevent the cassette from vibration. In such a case, insert the cassette strongly or pull the cassette out of the recorder once and again try to insert it.
- When a video cassette is completely inserted, close the dust-proof cover.

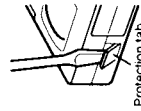
### Removing cassette from recorder



Open the dust-proof cover and press the EJECT button in the STOP mode.

- Don't insert fingers or foreign substances into the cassette compartment. When a little child is near the video cassette recorder, pay heed to him/her not to do so.
- If a video cassette is inserted in wrong posture, it is automatically ejected by the function of the protection circuit. If it happens, wait for a few seconds and try to insert it correctly once again.
- After removing a cassette from the recorder, close the dust-proof cover without fail.

### For protection of important recording



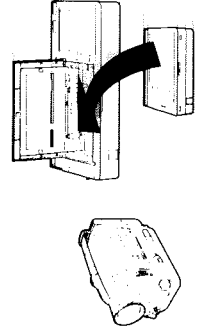
Protection tab



Break the recording protection tab of the cassette.

- If you want to use the cassette whose recording protection tab was broken for recording, cover the broken part with adhesive tape double.

### How to play back VHS-C cassette tape recorded by Video Movie



- Use an optional VHS cassette adapter C-P6U to play back VHS-C cassette tape.

## For playing back pictures clearly all the time (Use of head cleaning cassette)

- If this video cassette recorder is used for a long time, it makes playback pictures rough. In such a case, clean the video heads with an optional head cleaning cassette.

### ■ When the following symptom is observed:

- Playback picture is rough.
- Playback picture is unclear or no picture is reproduced on the screen.



What to do on such the occasions.

- Clean the video heads with a dry type head cleaning cassette.

### ■ Factors to soil heads

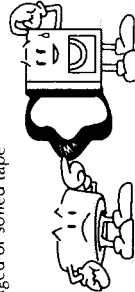
- High temperature, high humidity (in the rainy season, etc.)



- Dust in air



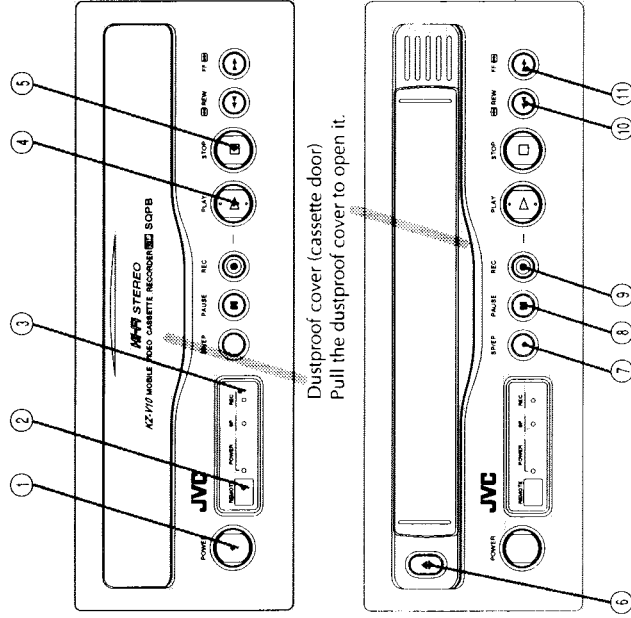
- Damaged or soiled tape



- Long-time operation, etc.



## FRONT VIEW



### ① POWER button

Press this button to turn on or off this video cassette recorder.

### ② REMOTE (remote sensor)

Aim the remote control unit at this part for operating this video cassette recorder with the remote controller.

### ③ Indicator lamps

Each indicator lamp is on when its related function is in operation.

POWER : Power supply indicator lamp (red lamp)

SP : Standard play (SP) indicator lamp (green lamp)

REC : Recording indicator lamp (red lamp)

### ④ PLAY button

Press this button to play back a video cassette.

### ⑤ STOP button

Press this button to stop playback operation.

### ⑥ ▲ (eject) button

Press this button to eject a video cassette.

### ⑦ SP/EP (standard play/extended play) selector button

Press this button to change the recording speed.

### ⑧ PAUSE button

Press this button to suspend recording or playback temporarily.

### ⑨ REC (recording) button

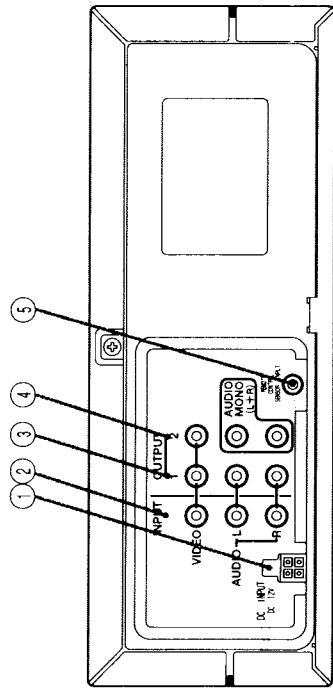
Press this button together with the PLAY button for recording.

### ⑩ REW (rewind) button

Press this button to rewind the tape.

### ⑪ FF (fast-forward) button

Press this button to fast-forward the tape.



#### ① POWER CORD CONNECTOR

#### ② INPUT (video and audio input) terminals

#### ③ OUTPUT-1 (video and audio [stereo] output) terminals

Connect the video and stereo audio input terminals of a TV set to these terminals.

#### ④ OUTPUT-2 (video and audio [monaural] output) terminals

Connect the video and monaural audio output terminals of a TV set to these terminals.

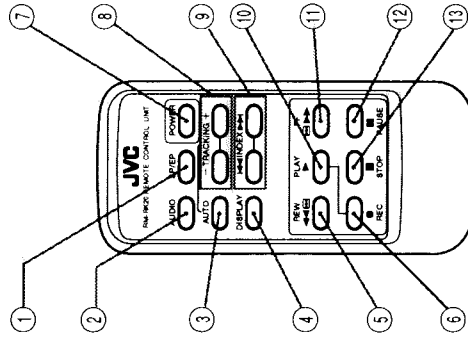
#### ⑤ REMOTE CONTROL SENSOR INPUT terminal

Connect a supplied Remote sensor unit to this terminal.

While a Remote Sensor unit is connected to this terminal, the video cassette recorder cannot be operated by wireless remote control through the Remote sensor on the front panel.

For connecting the JVC AV control receiver (KD-SX1000R, etc.) with the Remote control data cord supplied as an accessory, refer to the instructions of the JVC AV control receiver.

## REMOTE CONTROL UNIT



#### ① SP/EP (standard play/extended play) selector button

When the standard play (SP) is selected, the SP indicator on the front panel is on.  
Through recording SP and EP cannot be switched by the remote control unit.

#### ② AUDIO selector button

Press this button to select a desired audio output.  
Selected audio output is shown on the screen.

HI-FI: Hi-Fi audio output

L: Audio output on left channel only

R: Audio output on right channel only

NORM: Normal audio output

MIX: Mixed audio output

#### ③ AUTO (automatic tracking) button

Press this button to switch on/off automatic tracking.

#### ④ DISPLAY selector button

Press this button to select display of tape counter or tape remainder (by time).

#### ⑤ REW (rewind) button

Press this button to rewind tape.

#### ⑥ REC (recording) button

Press this button together with the PLAY button to start recording.

#### ⑦ POWER button

Press this button to turn on/off the video cassette recorder.

#### ⑧ TRACKING +/- buttons

Press these buttons for manual tape tracking. Before pressing these buttons, be sure to switch off automatic tracking with the AUTO button.

#### ⑨ INDEX buttons

Press these buttons to search the beginning of a program.

#### ⑩ PLAY button

Press this button to play back tape.

#### ⑪ FF (fast-forward) button

Press this button to fast-forward tape.

#### ⑫ PAUSE button

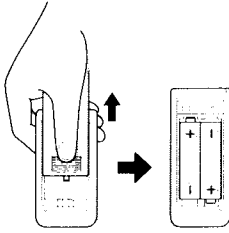
Press this button to suspend recording/playback temporarily.

#### ⑬ STOP button

Press this button to stop playback.

### How to set batteries in the battery compartment

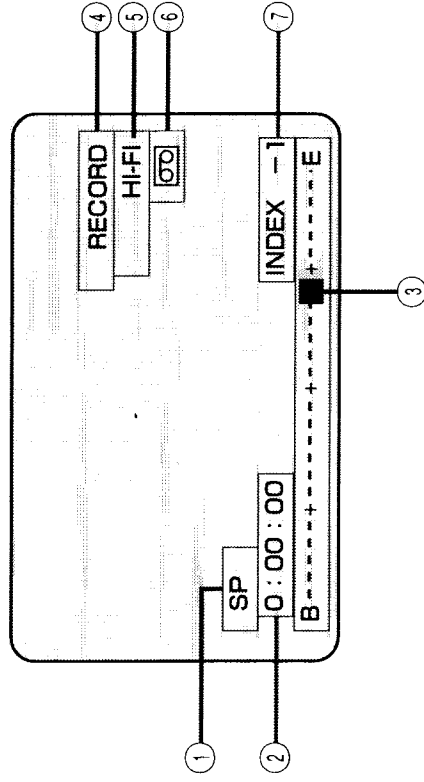
- Set two AA-size (SUM-3, R6P) batteries in the battery compartment following the indications.



- **Cautions on batteries**
- Since batteries supplied with the Remote control unit are just for operation check, they don't work for a long time.
- If the Remote controller won't be used for a considerably long time, remove batteries from it.
- Batteries need replacement in the following condition.
- If the controllable distance of the Remote control unit becomes short, it shows that the batteries are consumed and they will be dead. In such a case, replace the batteries with new ones.
- When replacing batteries:
- Replace batteries with two new AA-size batteries (alkaline batteries are recommended).
- Be sure to replace two batteries with new ones at the same time.
- (Don't use used batteries or different brands together.)
- Pay heed to the orientation (+ and - polarities) of each battery and set two batteries following the indications inside the battery compartment.
- Carefully read instructions appearing on the battery.
- The Remote control unit conforms to the "A" code.

### Indications on the screen

Operation and status of the video cassette recorder can be checked by indications appearing on the screen. Each time an operation button is pressed, operation of the video cassette recorder is shown for about 5 seconds.



- ① Recording/Playback tape speed indication (SP/EP)

- ② Tape counter/Tape remainder indication (by time)  
Indication of tape counter or tape remainder is switchable by the DISPLAY button on the remote controller.

- ③ Present tape position indication

- ④ Tape status indication  
(PLAY/RECORD/FF/REW/PAUSE)

- ⑤ Audio output indication  
HI-FI: Hi-Fi audio output  
L: Audio output on left channel only  
R: Audio output on right channel only  
NORM: Normal audio output  
MIX: Mixed audio output

- ⑥ Cassette indication

- ⑦ Program index indication  
(Indication of "MARK" blinks for about 2 seconds.)

### Tape counter

0 : 00 : 00

### Tape remainder

SP  
REMAIN 1 : 35

- Indication of tape remainder is just a reference.  
Some kind of cassette needs a considerable long time to indicate the remainder of tape or fails in indicating the remainder.



## Playback

### Playing back

Preparation: Turn on a Monitor set or TV set connected with the video cassette recorder and set it to an external input mode (VIDEO 1, VIDEO 2, etc.).

- 1 Press the POWER button of the video cassette recorder to turn it on.
- 2 Insert a video cassette into the video cassette recorder.
- When a video cassette whose recording protection tab is broken is inserted, the video cassette recorder automatically starts playback.
- 3 Press the PLAY button.

- Playback starts.
- Tape tracking is automatically adjusted.
- Press the STOP button to discontinue playback.
- When noise is generated in playback, press the AUTO button on the remote control unit to switch off the automatic tracking mode and manually adjust tape tracking with the TRACKING + and - buttons.

### Fast-forwarding/Rewinding

Press the FF button or REW button when the tape remains stopping.

- Fast-forwarding or rewinding stops when the tape reaches its end or beginning.
- If the POWER button is pressed within 2 seconds after the REW button is pressed, the video cassette recorder is turned off after the tape is completely rewound to its beginning.
- If the PLAY button is pressed within 2 seconds after the REW button is pressed, the video cassette recorder starts playback of the tape.

### Fast-forwarding/Rewinding while looking at picture

Momentarily press the FF button or REW button in playback.

- The video cassette recorder starts search playback in the normal (FF button) or reverse (REW button) direction at a speed 7 times as fast as the normal in the SP mode or 21 times as fast as the normal in the EP mode.
- To play back the tape normally, press the PLAY button.
- If the FF button or REW button is continuously pressed for 2 seconds or longer in playback, the tape is fast played back in the normal (FF button) or reverse (REW button) direction (5 times as fast as the normal in the SP mode or 7 times as fast as the normal in the EP mode). When the FF or REW button is released from pressing, playback speed reverts to the normal.

## Still playback/Frame-to-frame playback/Slow playback

Press the PAUSE button in playback.

- The playback picture becomes still.
- When the still picture fluctuates up and down, adjust tracking with the TRACKING +/- button on the remote controller so that the picture becomes stable.

Press the PAUSE button in the still playback mode.

- Each time the PAUSE button is pressed in the still playback mode, pictures are played back from frame to frame.
- If the same operation is performed in the reverse playback mode, pictures are played back from frame to frame in the reverse direction.

Continuously press the PAUSE button in playback for 2 seconds or longer.

- Playback speed goes down to 1/6 of the normal speed (slow playback).
- When noise is generated in this operation, adjust tracking with the TRACKING +/- button on the remote controller so that noise is minimized.
- If the same operation is performed in the reverse playback, slow playback is operated in the reverse direction.

- To return to the normal playback from the slow playback, press the PLAY button.

- In playback at a speed different from the normal (in fast/slow playback), no sound is output from the video cassette recorder.

- If noise is generated in the fast playback, reverse playback or slow playback, it does not come from machine trouble.

- If still playback or slow playback is continuously operated for 5 minutes or longer, the video cassette recorder automatically stops playback for protecting the tape.

- If a badly recorded video tape or tape on which recording was performed by a different machine is played back, tracking adjustment occasionally results in failure.

- Automatic tracking is automatically activated the moment the video cassette recorder is turned on or a cassette is inserted.

### Repeated playback

Press the PLAY button in playback for 5 seconds or more. (The PLAY indication blinks.)

- The tape is repeatedly played back from the beginning to the end 20 times, and the 20th playback ends at the end of the tape.

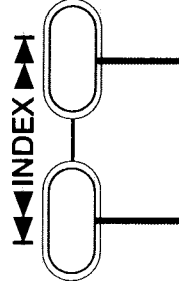
- To discontinue repeated playback halfway, press the STOP button.

## Search playback

### Playing back from the beginning of each program – Search playback

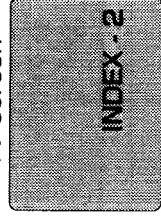
To start playback from the beginning of a program, search the index recorded at the beginning point of each program. Video cassette tapes recorded by JVC machine have automatically recorded the index marks.

- 1 Choose a desired address (index) with the INDEX button on the remote control unit.



Rewind direction Forward direction

TV screen



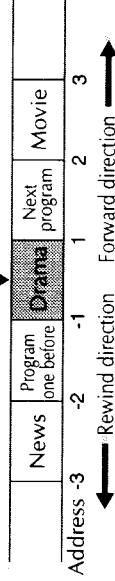
Choose an address (index) two before the present program.

- Search a desired address (index) for automatic playback of the program.
- Each time the right button is pressed, the number of index increases. On the other hand, each time the left button is pressed, the number of index decreases.
- Maximum nine programs can be chosen at a time.

- To discontinue search playback halfway, press the STOP button.

### How to choose (specify) the address (index) of a program

Program played back at present



[Example]

To choose the next program:

Press the INDEX button (▶▶) once.

To choose the program one before:

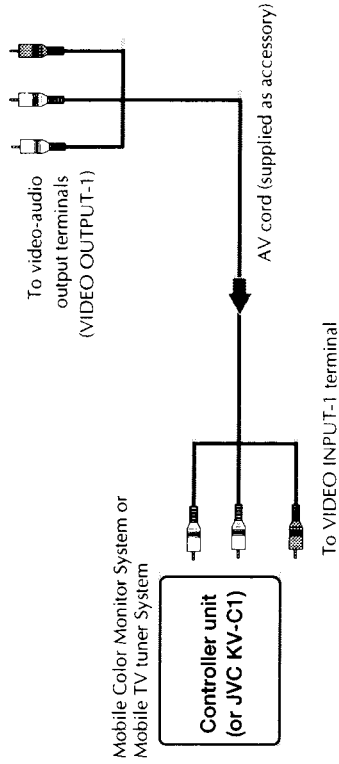
Press the INDEX button (◀◀) twice.

## Connection to other apparatus

### Connection to Mobile Color Monitor System KV-M65

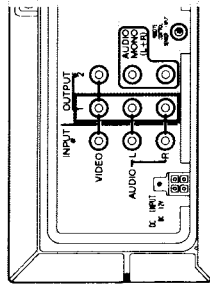
Connect the KV-M65 to the controller unit of the Mobile Color Monitor System KV-M65.

- 1 Connect the video-audio output terminals (VIDEO OUTPUT-1) of the KV-M65 and the video-audio input terminals (VIDEO INPUT-1) of the tuner unit of the KV-M65 with the AV cord supplied as an accessory.
- 2 When the JVC TV tuner system KV-C1 is used, the same applies to it.



### Example of connection

#### Signal flow



## Connection to a video camera

If a video camera is connected to this video cassette recorder, picture and sound can be recorded by the machine. However, there are some video cameras that cannot be connected to this video cassette recorder. For details, refer to the instructions of the video camera.

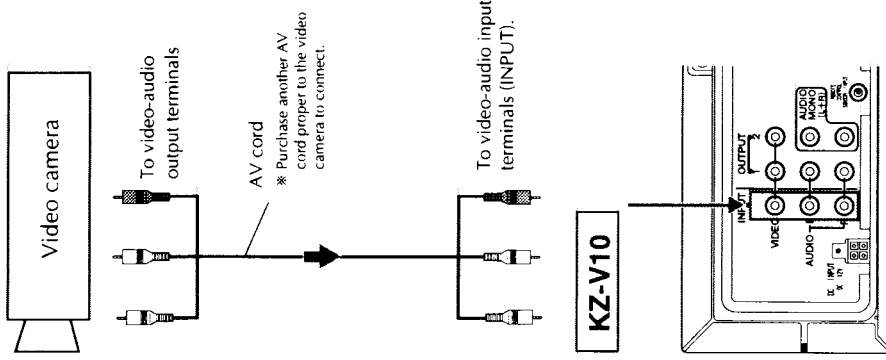
- 1 Connect the audio-video output terminals of the camera to the audio-video output terminals of this video cassette recorder.
- 2 Insert a video cassette whose recording protection tab is not broken.
  - The video cassette recorder is automatically turned on.
  - Choose a recording speed of SP or EP with the SP/EP button.
- 3 While pressing the PAUSE button, press the REC button to enter the machine into the pause mode.
  - The REC indicator lamp blinks.
- 4 Press the PLAY button the moment you want to record the scene.
  - The machine starts recording.
- To suspend recording temporarily, press the PAUSE button.
- To discontinue recording, press the STOP button.



- If the machine remains in the pause mode for 5 minutes or longer, the pause mode is automatically canceled and the machine stops operation for protecting the video head.
- The copyright law forbids you to use matters that you recorded by the video cassette recorder without permission of the copyright holder except the case you use them for private enjoyment.

### Example of connection

#### Signal flow



## Troubleshooting

When you doubt if there is something wrong in the machine, check the symptom and cause referring to the following table.

■ No power supply ☆ Power cord is disconnected. ○ Tightly plug the power cord into the jack.	
■ Machine does not work though power is normally supplied. (POWER indicator lamp is blinking.) ☆ Machine is dewed inside, or high temperature sensor circuit is in operation. ○ When the machine is dewed, wait for several hours until the inside becomes dry. ○ When the high temperature sensor circuit is functioning, cool the cabin to lower the machine temperature.	
■ Indications don't disappear from the screen. ○ Press the DISPLAY button on the remote control unit.	
■ Noise appears in a part (or some parts) of playback picture. ☆ Abnormal tracking. ☆ If noise appears in the same part of playback picture all the time, the tape is damaged by the part. ○ Press the AUTO button on the remote control unit to cancel automatic tracking and manually adjust tracking with the TRACKING + and - buttons.	
■ Still picture fluctuates up and down. ☆ Vertical hold is maladjusted. ○ Adjust tracking with the TRACKING + and - buttons on the remote control unit.	
■ Abnormal color ■ No video output ■ No audio output ○ Carefully read the instructions of the TV set connected to the video cassette recorder.	
■ Playback picture is rough or frosted. ☆ Video heads are soiled. ○ Clean the video heads with the head cleaning cassette.	

## Specifications General

- Power supply : DC12V (11-16V allowable) Negative ground
- Dimensions : 10-1/4" x 3-3/4" x 10-11/16" (259 x 94 x 270 mm)  
(width x height x depth)  
: 7.1 lbs (3.2 kg)
- Mass : 7.1 lbs (3.2 kg)
- Allowable working temperature : 0°C to +40°C (32°F to 72°F)
- Allowable relative humidity : 35 % to 80 %
- Allowable conservation temperature : -20°C to +60°C (12°F to 92°F)

### Video

- Recording/playback system : VHS format (with SQPB), Hi-Fi 4-heads helical scan
- Video signal : NTSC standard signal

### Audio

- Recording system : VHS stereo Hi-Fi audio
- Audio track : 2 Hi-Fi audio channels and 1 normal audio channel
- Remote control unit : A code  
(A code and B code are switchable automatically in the main unit.)

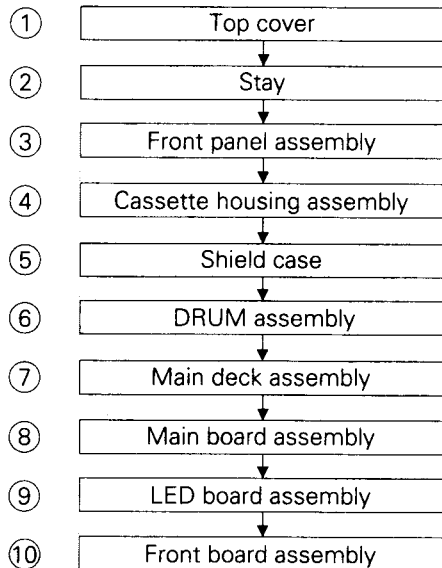
Design and specifications subject to change without notice.



# SECTION 1 DISASSEMBLY

## 1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



## 1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	5(S1), 2(S2), (L1)	
②	STAY	D2	2(S3), WR1, WR2	
③	FRONT PANEL ASSEMBLY	D2	2(S4), 3(L2), *CN801	<NOTE 1> <NOTE 3>
④	CASSETTE HOUSING ASSEMBLY	D3	2(S5)	<NOTE 2>
⑤	SHIELD CASE	D4	2(S6), *CN1	
⑥	DRUM ASSEMBLY	D5	3(S7), WR3	<NOTE 3>
⑦	MAIN DECK ASSEMBLY	D6	2(S8), WR4, WR5, 2(L3), *CN703, *CN802	<NOTE 4>

↑ (1)      ↑ (2)      ↑ (3)      ↑ (4)      ↑ (5)

- (1) Order of steps in Procedure  
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
- (2) Part name to be removed or installed.
- (3) Fig.No. showing procedure or part location
- (4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, \* = Unhook, unlock, release, unplug or unsolder.
- (5) Adjustment information for installation

## 1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	5(S1), 2(S2), (L1)	
②	STAY	D2	2(S3), WR1, WR2	
③	FRONT PANEL ASSEMBLY	D2	2(S4), 3(L2), *CN801	<NOTE 1> <NOTE 3>
④	CASSETTE HOUSING ASSEMBLY	D3	2(S5)	<NOTE 2>
⑤	SHIELD CASE	D4	2(S6), *CN1	
⑥	DRUM ASSEMBLY	D5	3(S7), WR3	<NOTE 3>
⑦	MAIN DECK ASSEMBLY	D6	2(S8), WR4, WR5, 2(L3), *CN703, *CN802	<NOTE 4>
⑧	MAIN BOARD ASSEMBLY	D7	4(L4), 2(L5)	
⑨	LED BOARD ASSEMBLY	D8	3(S9)	
⑩	FRONT BOARD ASSEMBLY	D8	2(S10)	

### <NOTE1>

When reattaching the front panel assembly, make sure that the door opener ㊸ of the cassette housing assembly is lowered in position prior to the reinstallation.

### <NOTE2>

When reattaching the cassette housing assembly, pay careful attention to the switch lever not to make it touch the REC switch knob of the MAIN board assembly from the upside. (If the REC switch knob of the MAIN board assembly is damaged, cassette loading is impossible.)

### <NOTE3>

When plugging the connector in, check that the flat wire is inserted properly and fully.

### <NOTE4>

- When removing the Main deck assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Main deck assembly.
- When reattaching the Main deck assembly to the Main board assembly, make sure to set the spacers into the retaining slots respectively.

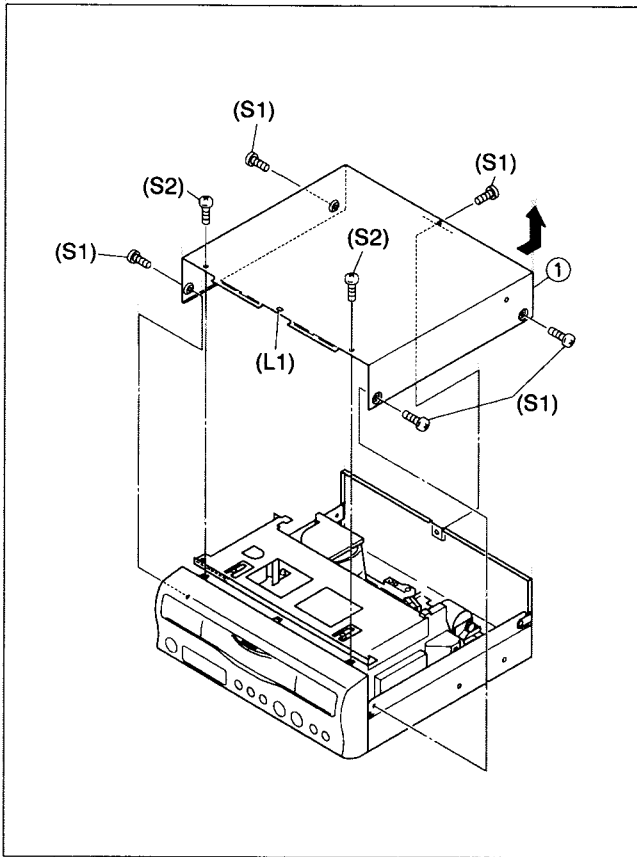


Fig. D1

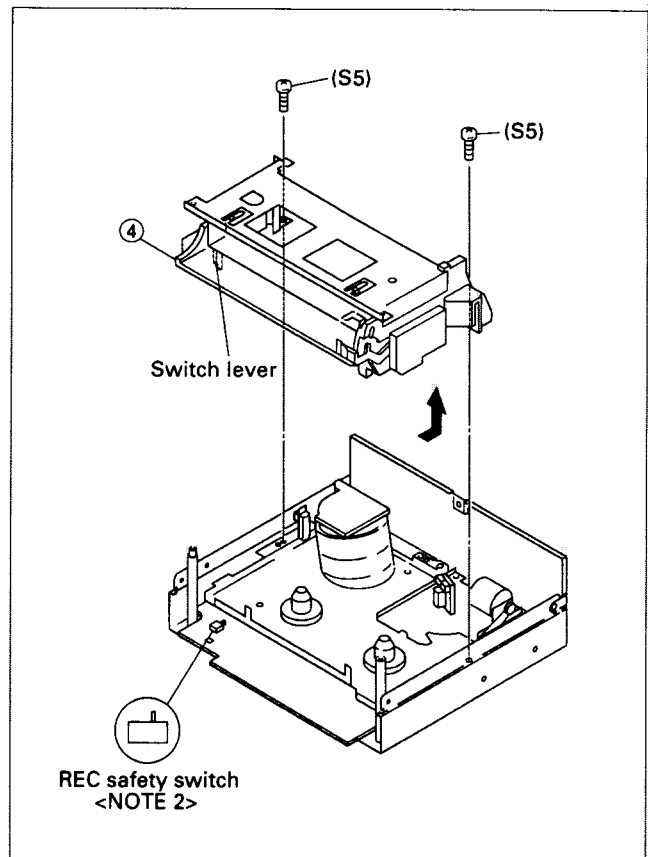


Fig. D3

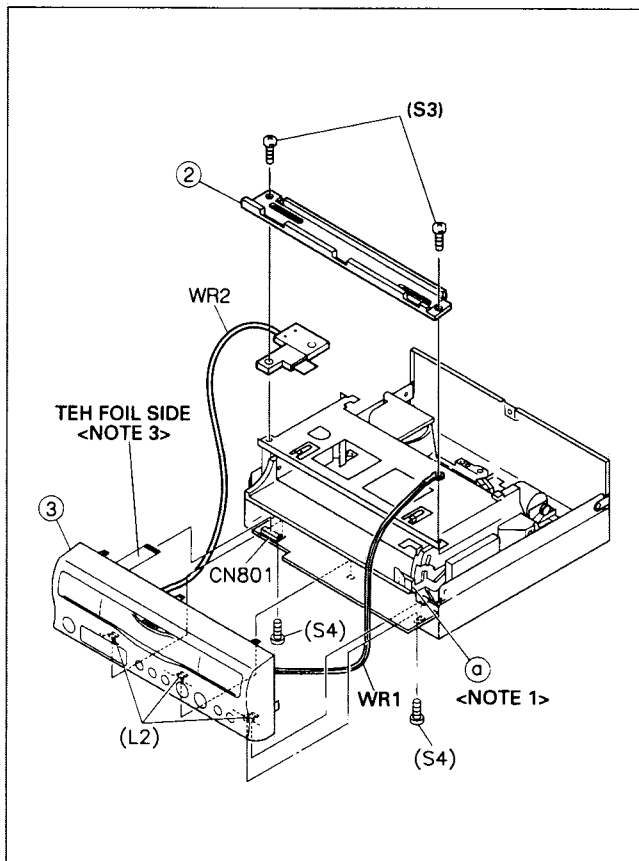


Fig. D2

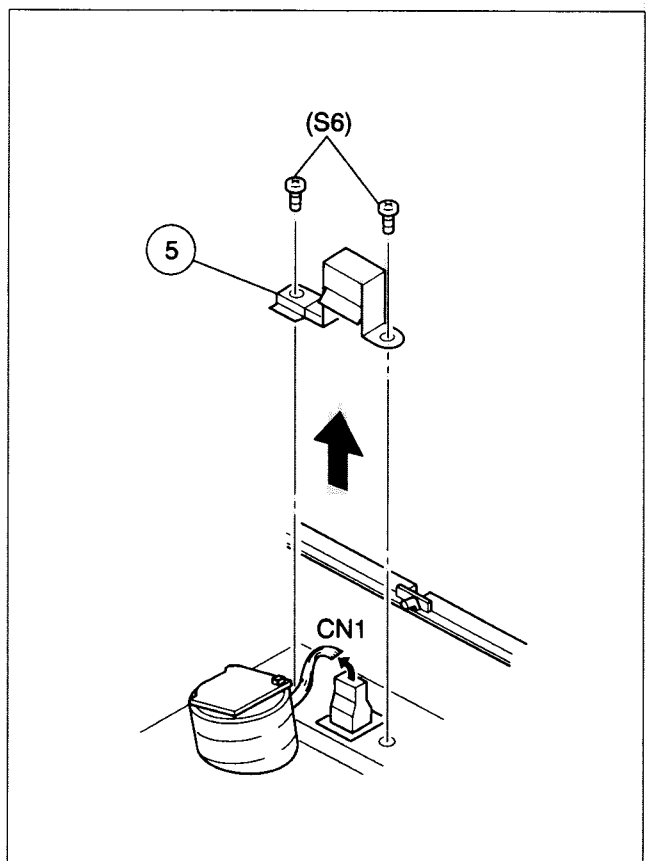


Fig. D4

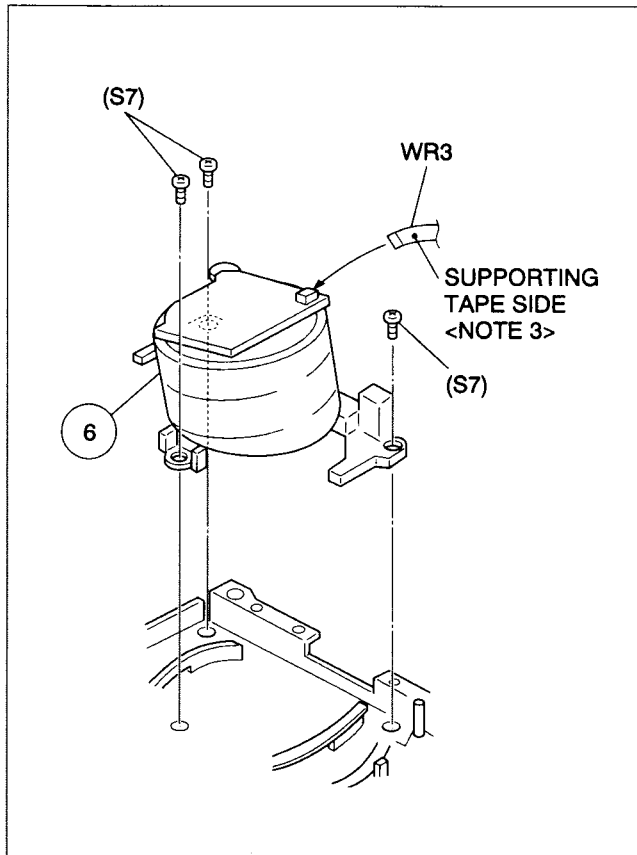


Fig. D5

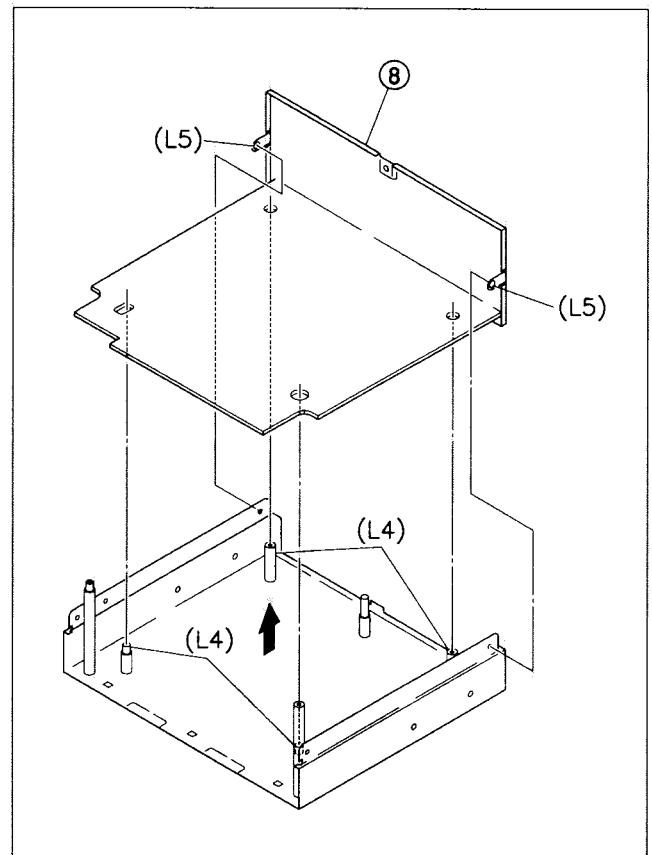


Fig. D7

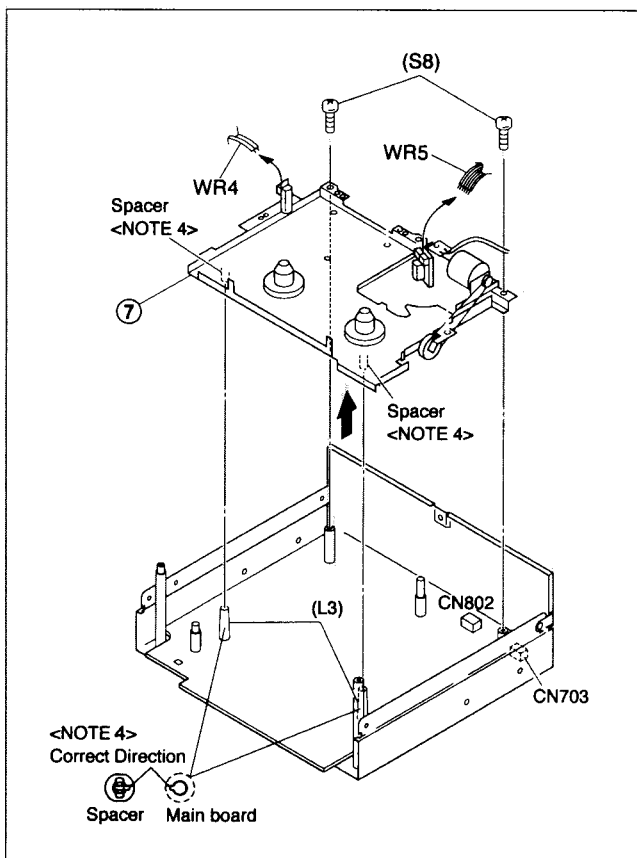


Fig. D6

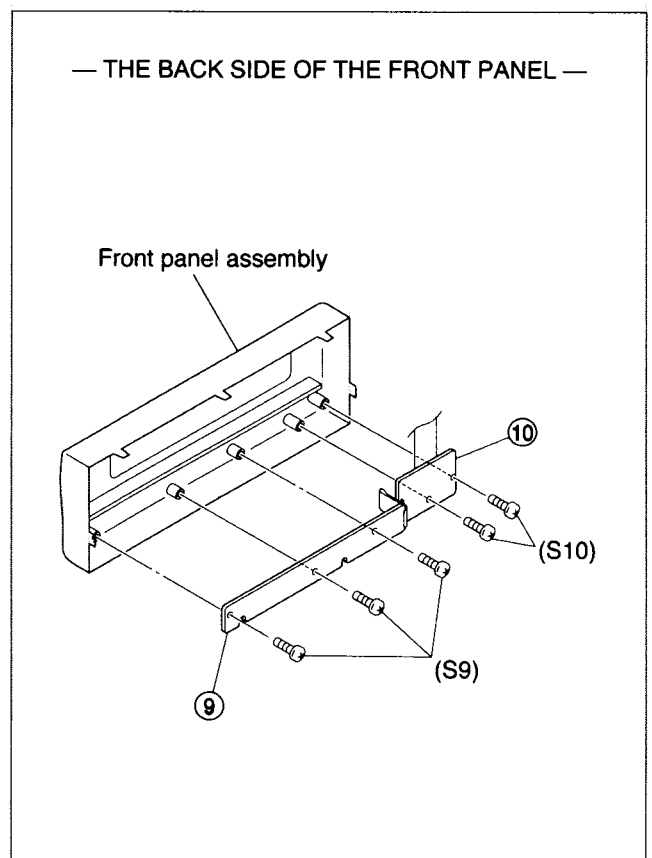


Fig. D8

## 1.4 CASSETTE HOUSING INSTALLATION

**NOTE:** *Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.*

- (1) Check that the hole of the control cam are aligned to the deck hole. If necessary, turn the loading motor belt by hand to adjust the position.

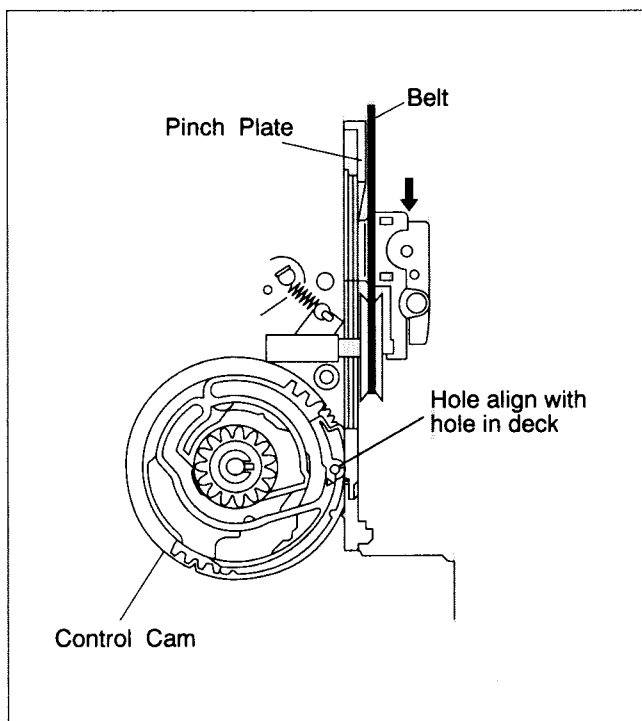


Fig. 1-4-1

## 1.5 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Main deck assembly, this unit is constructed so as to allow the Main deck and the Main board assemblies to be removed together from the Chassis assembly.

### 1.5.1 How to take out the Mechanism and Main board assemblies.

- (1) Remove the Top cover. (See Fig. D1 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (2) Remove the stay and Front panel assembly. (See Fig. D2 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (3) Take out 2 screws (A) as shown in Fig. 1-5-1.

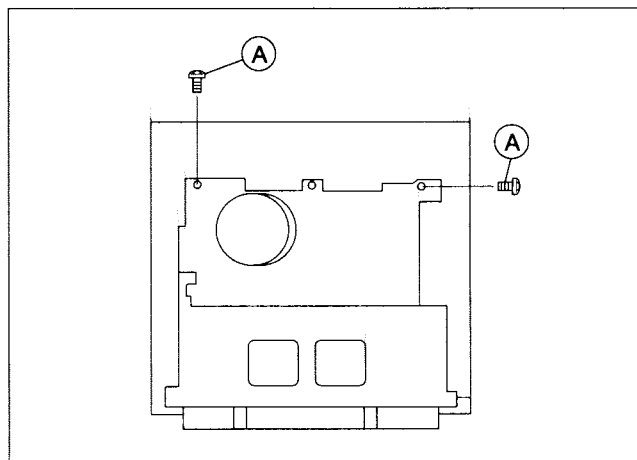


Fig. 1-5-1

- (4) Remove the Mechanism assembly (including Cassette housing) and Main board assembly out of the chassis as shown in Fig. 1-5-2.

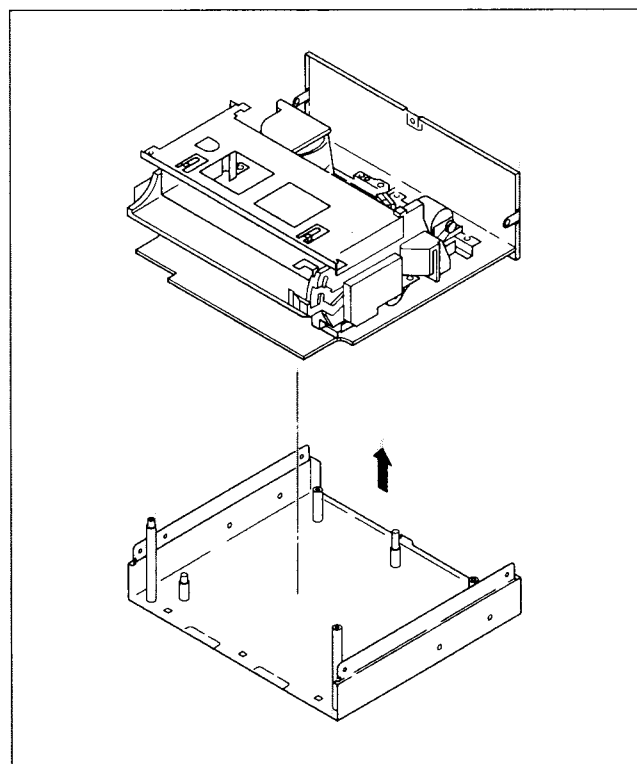


Fig. 1-5-2



- (5) Turn over the Mechanism assembly and Main board assembly.
- (6) Connect the flat wire of the Front panel again.
- (7) Carry out checks & repairs as necessary as shown in Fig.1-5-3.

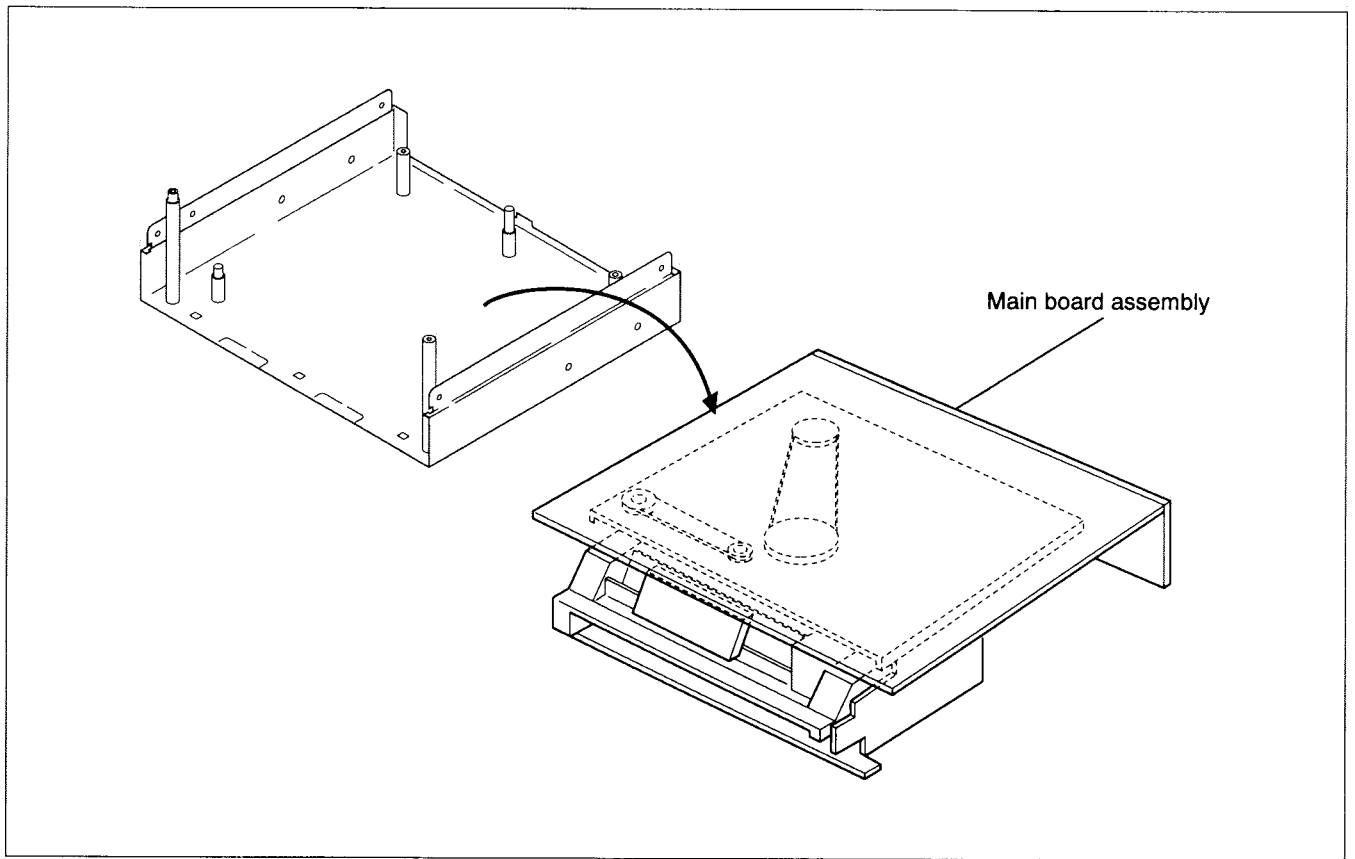


Fig. 1-5-3

## 1.6 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

- (3) Connect TP GND and TP1201 (TEST) on the Front board assembly with a jump wire.
- (4) Connect VCR to AC.
- (5) Press the POWER button.
- (6) Select the desired operation modes with the operation buttons or remote controller.

### 1.6.1 How to set the "MECHANISM SERVICE MODE"

- (1) Disconnect VCR from AC.
- (2) Remove the Top cover, Stay, Front panel assembly and cassette housing assembly. (See Page 1-2, 1-3.)

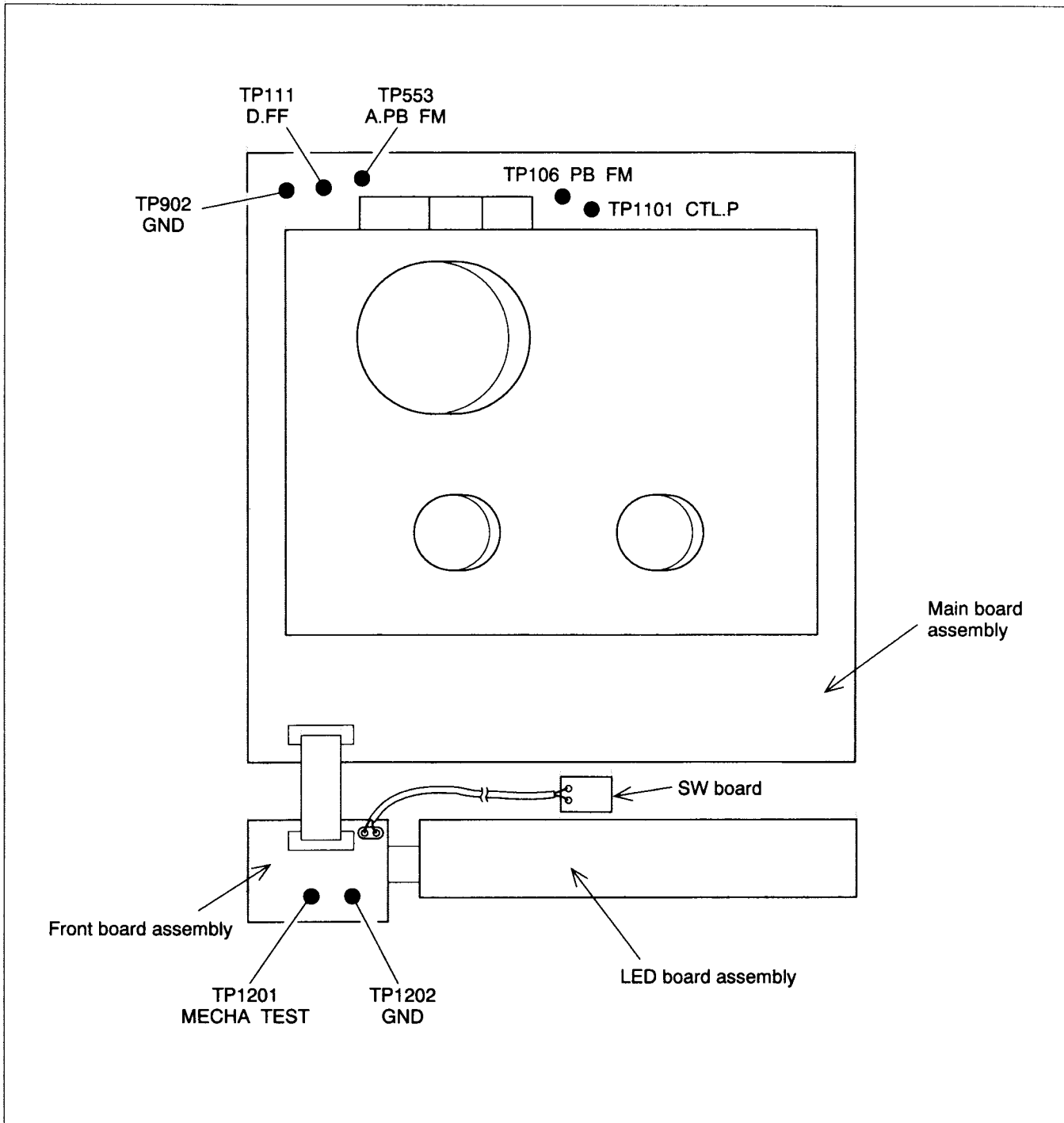


Fig. 1-6-1

## 1.7 EMERGENCY DISPLAY FUNCTION

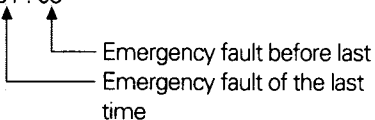
This product has the function to store the last two previous emergency faults which can be displayed in the OSD (ON SCREEN) when servicing.

### 1.7.1 How to display record of an emergency faults

**Note 1** : Put the unit into A mode by using the VCR remote controller. (When it is in B mode, the preset remote control codes are not accepted.)

- (1) Press "N" button of the presetting unit more than 2 seconds and the two previous emergency faults are shown in the FDP.
- (2) Press "N" button of the presetting unit again to return to the normal mode.

[Example] E : 01 : 03



[Example] E : — : — ← No record of emergency

### 1.7.3 How to clear emergency record

Press the COUNTER RESET button (NOTE 2) on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

**Note 2** : Use the VCR remote controller.

### 1.7.2 Detail of emergency faults

EMG DATA	Symptom	Detect mode	Resulting mode
E —	No EMERGENCY		
E 01	Loading motor rotates for more than 4 Sec without shift to next mode.	Loading	POWER OFF
E 02	Loading motor rotates for more than 4 Sec without shift to next mode.	Unloading	POWER OFF
E 03	SUP REEL FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/REW	STOP → POWER OFF
E 04	DRUM FF input is absent. (for more than 3 Sec)	REC/PLAY SEARCH FF/REW	STOP
E 05	(NOT USED)	—	—
E 06	CAPSTAN FG input is absent. (for more than 1 Sec)	REC/PLAY/FF/REW SEARCH FF/REW	STOP → POWER OFF
E 07	No SWD5V/12V	POWER ON	POWER OFF

Table 1-7-1 EMERGENCY FAULTS

## SECTION 2

### MECHANISM ADJUSTMENT

#### 2.1 PREPARATION

##### 2.1.1 Precautions

- (1) Disconnect VCR from AC power before soldering.
- (2) Avoid imparting stress to wires when disengaging connectors.
- (3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
- (4) Use care not to damage tabs, claws, etc. during repairs.
- (5) Install the cassette housing assembly only when the mechanism is in the MECHANISM ASSEMBLING MODE position.
- (6) When installing the Front panel assembly, be sure to engage the housing door with the door opener of the cassette housing assembly.  
If this is omitted, the cassette door will not open at Eject and the cassette can not be removed. (See SECTION 1 DISASSEMBLY)

##### 2.1.2 Check without cassette housing assembly

Mechanism operations can be observed easily by removing the cassette housing assembly. Use the MECHANISM SERVICE MODE (See 1.6 MECHANISM SERVICE MODE).

##### 2.1.3 Manual removal of loaded tape

When the deck enters the emergency mode with cassette tape loaded and it can not be ejected by pressing the EJECT button, take out of the cassette tape according to the following procedure.

- (1) Disconnect the power cord from AC outlet then take out the Top cover, Stay and Front panel assembly.
- (2) Turn the loading motor on the Main deck assembly by hand in the unloading direction to where the pole base assembly (supply and take-up) and guide arm assembly are positioned below the cassette tape. At that time, pay careful attention to the tape not to get soiled with grease.
- (3) Take out 2 screws of the cassette housing assembly. (See SECTION 1 DISASSEMBLY)
- (4) Remove the cassette housing with slackened tape and guard panel of cassette.
- (5) Wind up the tape by turning the reel hub (either supply or take-up side for convenience) from the bottom of the cassette, and remove the cassette tape.

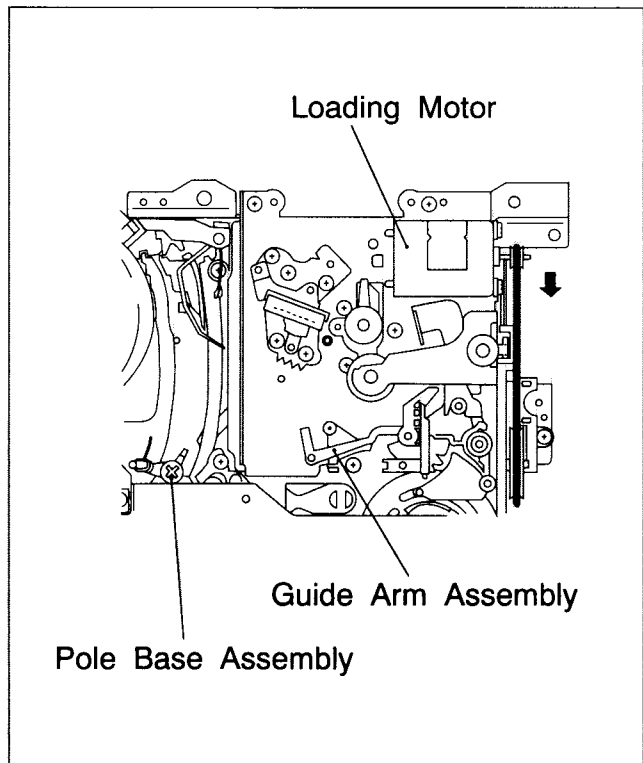


Fig. 2-1-1

## 2.1.4 Test Equipment

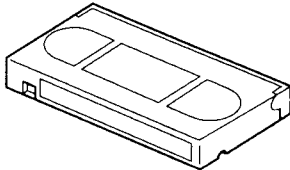
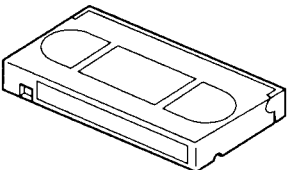
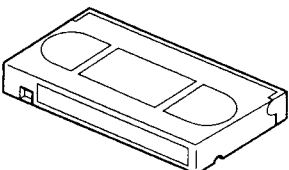

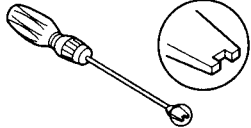
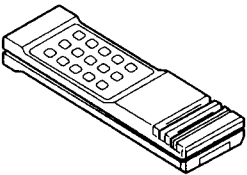
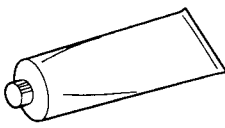
Alignment tape (SP) MHP	Alignment tape (EP) MHP-L	Back tension cassette gauge PUJ48076-2	A/C head positioning tool PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Grease KYODO-SH-P	
			

Table 2-1-1 Test equipment

## 2.2 MAIN MECHANISM PARTS

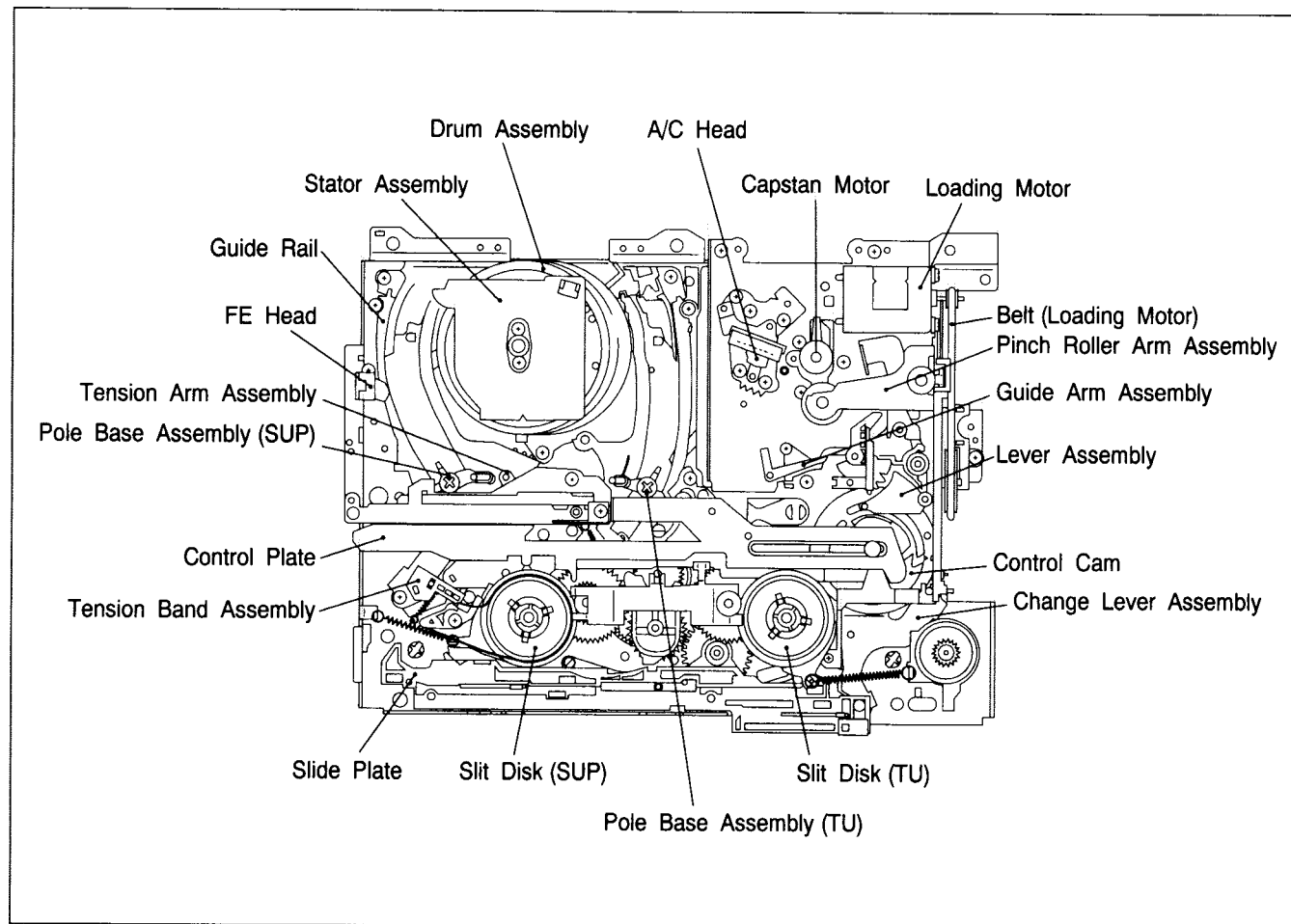


Fig. 2-2-1 Top view of main deck

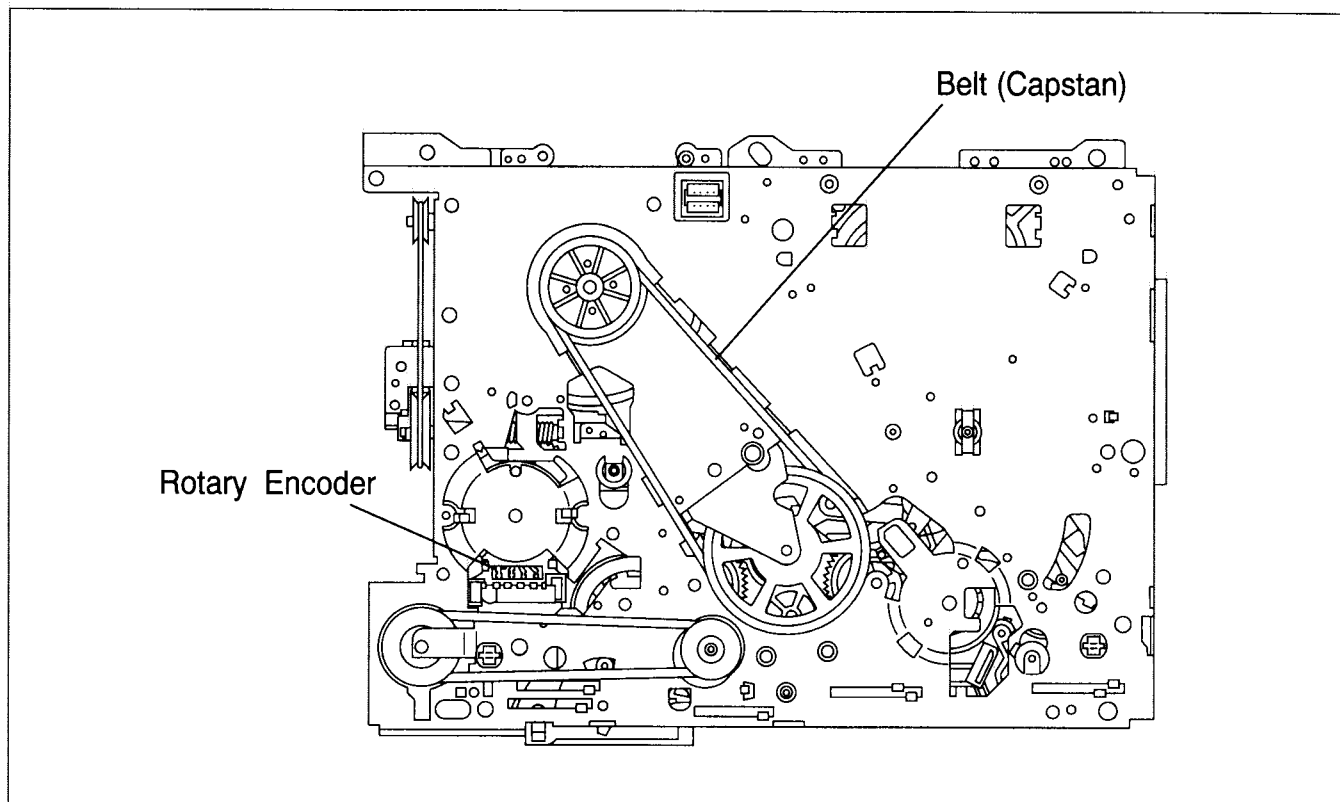


Fig. 2-2-2 Bottom view of main deck

### 2.2.1 Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

- (1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

**Note:** *Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.*

- (2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
- (3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

### 2.2.2 Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

- (1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-2-1 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the dis-assembly diagrams
Grease	Maltemp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-2-1 Grease and oil used for the unit

- (2) Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

### 2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

#### 2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★ ○	○
	A/C head	★ ○	★ ○
	Lower drum motor assembly	★	★ ○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Slit disk (supply, take-up)		○
	Clutch unit (supply, take-up)		○
	Worm gear assembly		○
	Control plate		○
	Slide plate		○
Other	Brush assembly	★ ○	★ ○
	Tension band assembly	○	○
	Rotary encoder		○

★ : Cleaning

○ : Inspection or Replacement if necessary

Table 2-3-1

### 2.4 DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM

#### 2.4.1 Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and installation of the mechanism (MECHANISM ASSEMBLING MODE), and it is suggested to set the mechanism to this mode before disassembly and installation. The exclusive mechanism operation mode is not generally used and becomes available by manual setting only. Then this procedure starts with the condition that the cabinet parts and cassette housing assembly have been removed.

#### 2.4.2 How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE)

- (1) Turn the loading motor belt by hand.
- (2) Confirm that the hole of the control cam are aligned to the deck hole as shown in Fig.2-4-1.

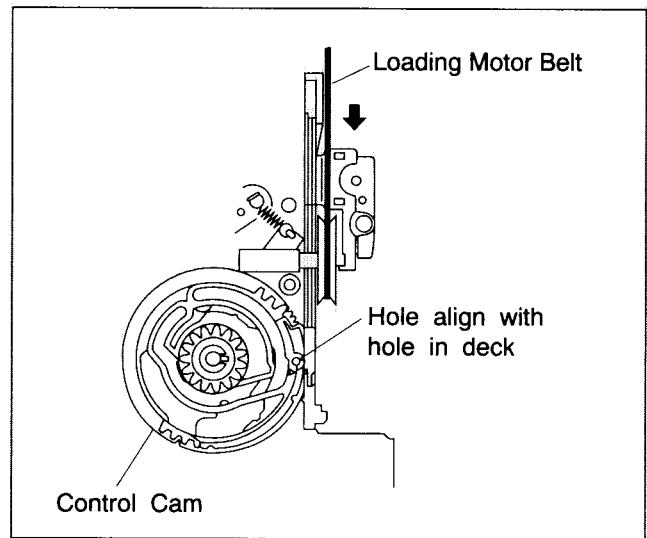


Fig. 2-4-1

### 2.5 MAIN PARTS REPLACEMENT OF MECHANISM

#### 2.5.1 Pinch Roller Arm Assembly

- (1) Remove the slit washer.
- (2) Tilt up the pinch roller assembly in direction of arrow.

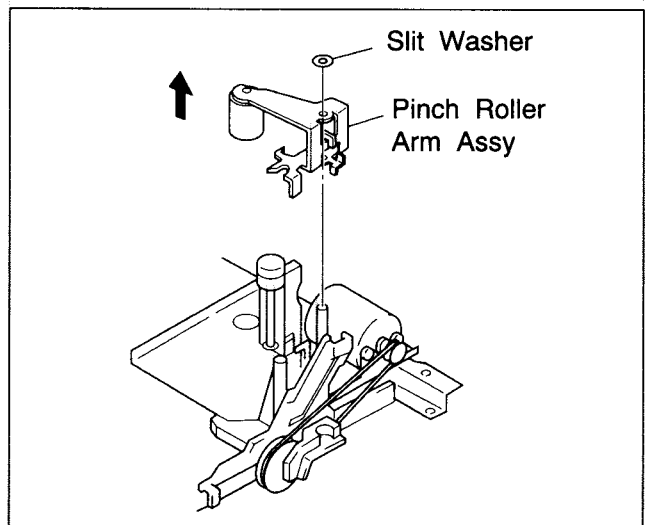


Fig.2-5-1

## 2.5.2 A/C Head

### 1. Removal

- (1) Take out 2 screws (A).
- (2) Remove the A/C head with head base.

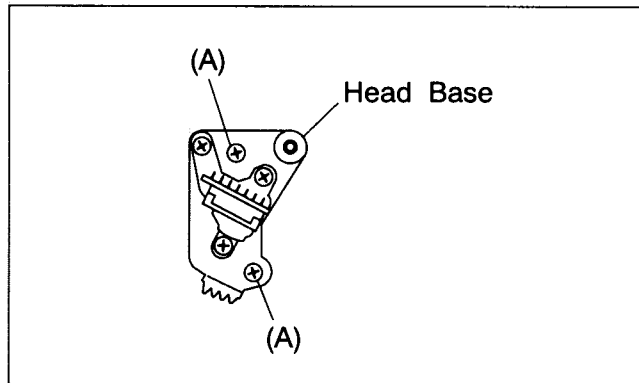


Fig.2-5-2

- (3) When replacing the A/C head only, remove 3 screws (B), use care not to misplace the 3 springs.

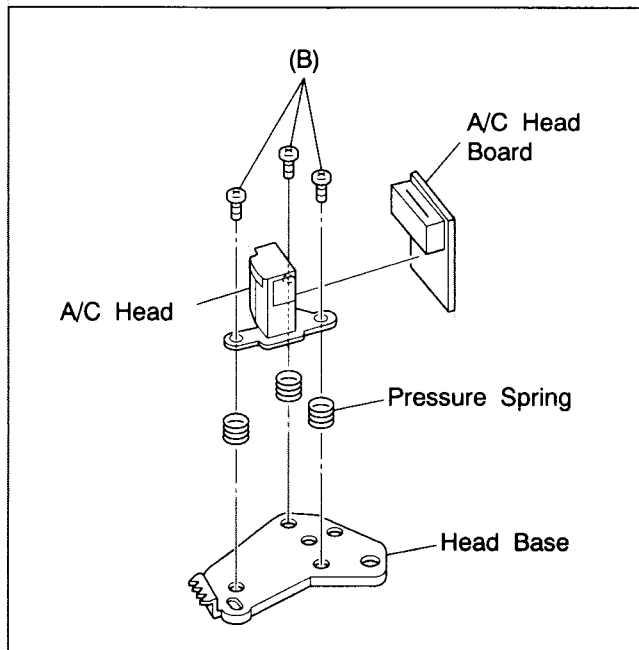


Fig.2-5-3

### 2. Installation

- (1) Temporarily set A/C head height as indicated in Fig. 2-5-4.

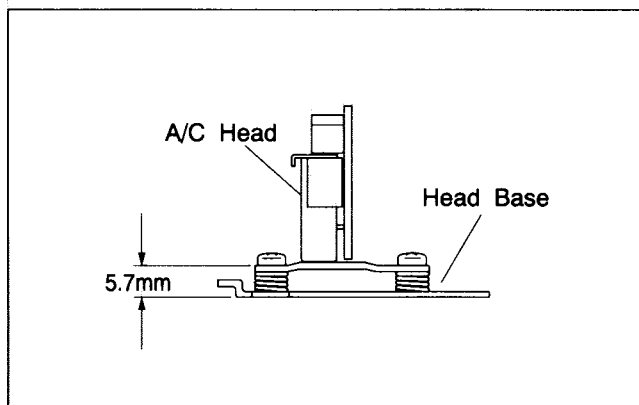


Fig.2-5-4

### NOTES:

- It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.
- Perform compatibility adjustments after electrical adjustments.

## 2.5.3 Pinch Plate

### 1. Removal

- (1) Disengage 2 claws, then remove the pinch plate.

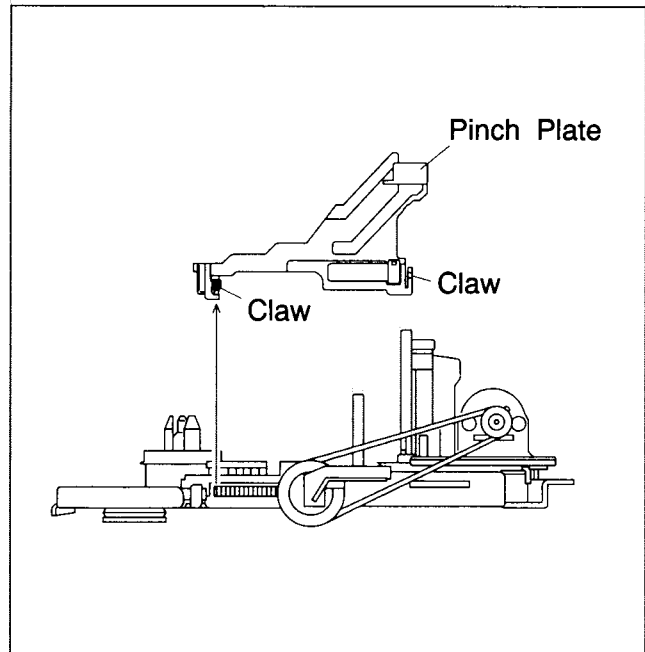


Fig.2-5-5

### 2. Installation

- (1) When installing pinch plate, align rack of pinch plate and triangle mark of control cam as indicated in Fig.2-5-6.

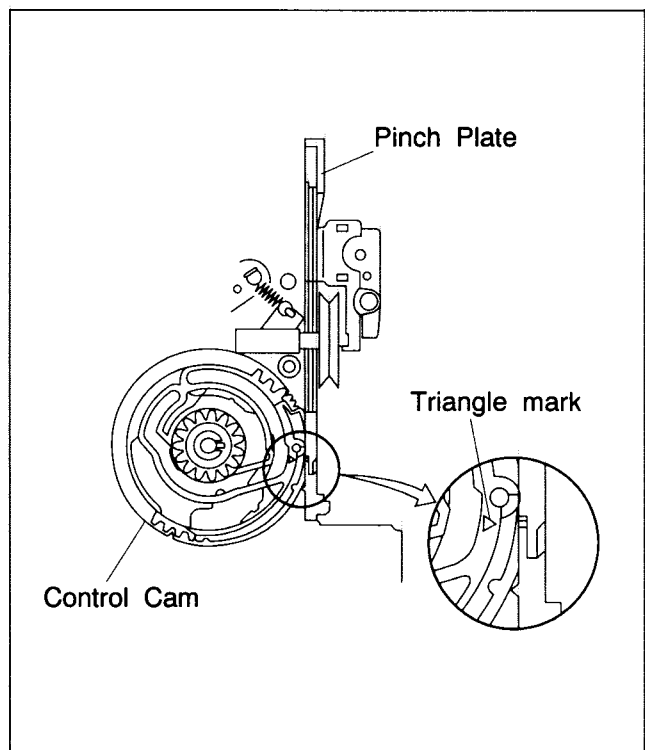


Fig. 2-5-6



### 2.5.4 Loading Motor

- (1) Disengage the belt between loading motor and worm gear.
- (2) Take out 2 screws (A) then remove the loading motor.

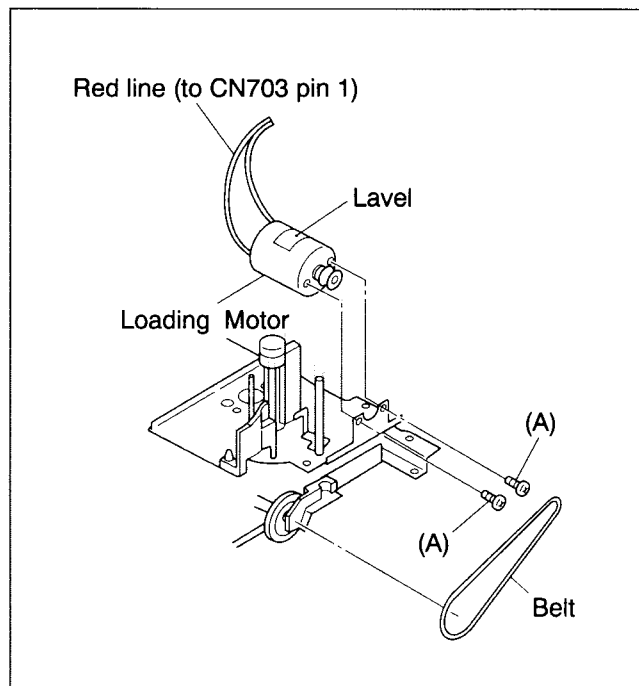


Fig.2-5-7

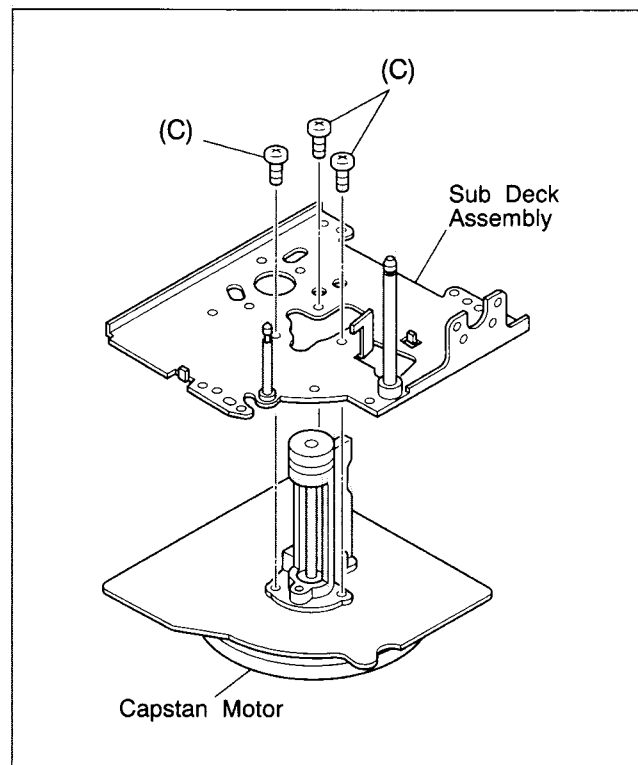


Fig.2-5-9

### 2.5.5 Lever Assmebly,Sub Deck Assembly,Capstan Motor

- (1) Take out 1 slit washer,then remove the lever assembly.
- (2) Disengage the belt( capstan motor) from bottom of mechanism assembly first as indicated in Fig.2-5-10.
- (3) Take out 2 screws (A) and 1 screw (B) then remove the sub deck assembly as indicated in Fig.2-5-8.
- (4) Take out 3 screws (C) and remove the capstan motor from the sub deck assembly as indicated in Fig.2-5-9.

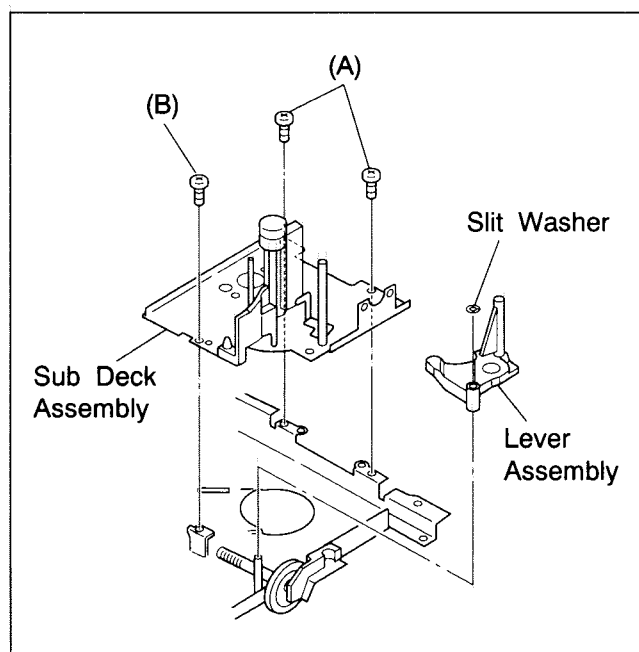


Fig.2-5-8

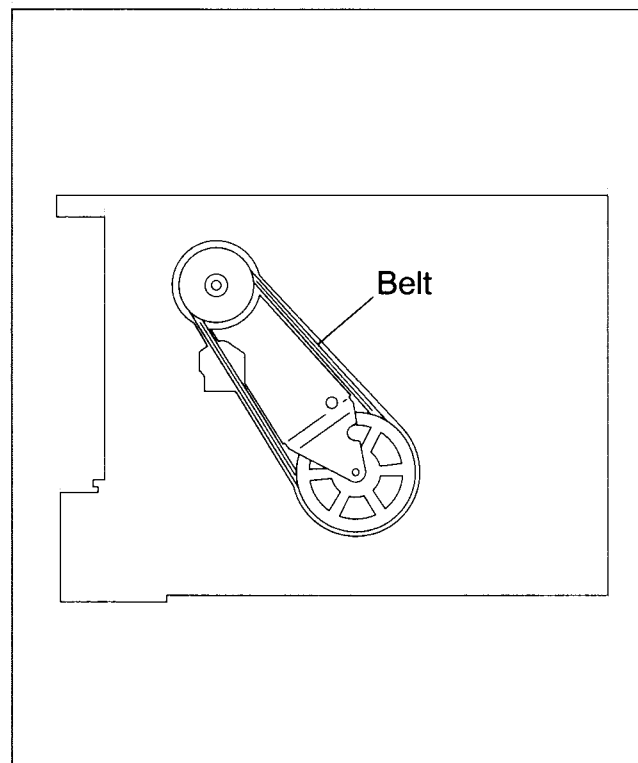


Fig.2-5-10

### 2.5.6 Control Bracket

- (1) Take out 1 screw (A) and 1 screw (B).
- (2) Remove the control bracket.

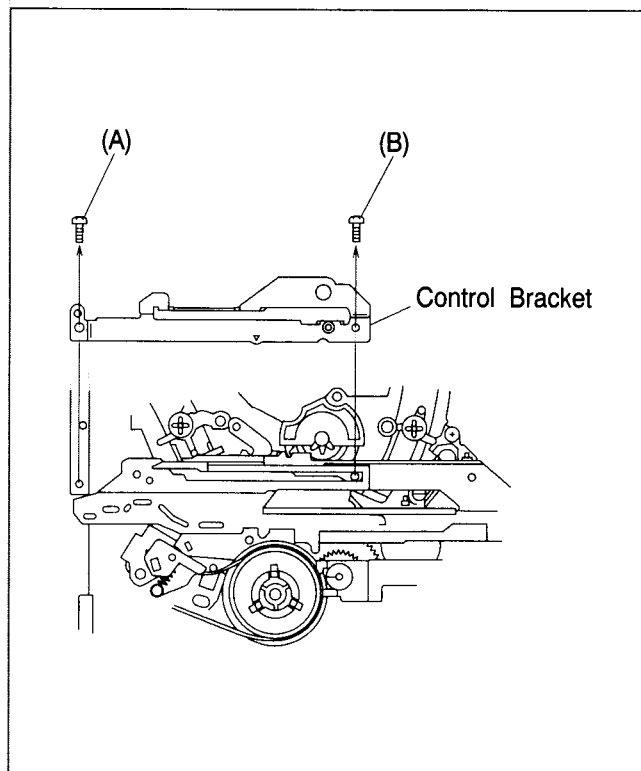


Fig.2-5-11

### 2.5.7 Slit disk (take-up)

- (1) Take out 1 slit washer.
- (2) Remove the slit disk (take-up).

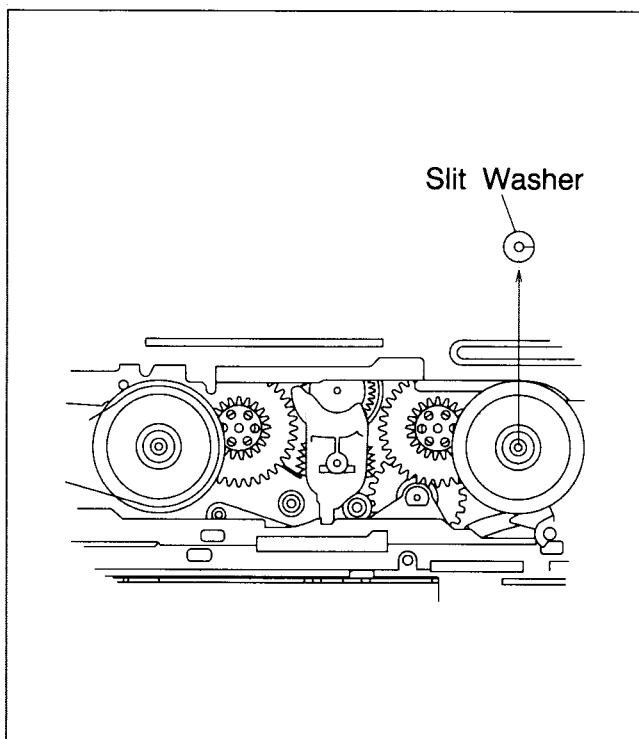


Fig.2-5-12

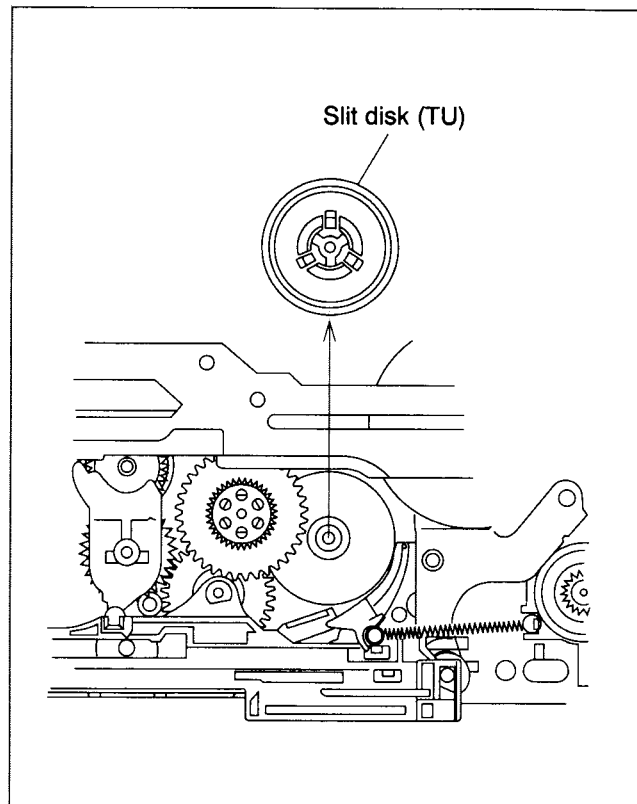


Fig.2-5-13

### 2.5.8 Control Plate

- (1) Take out 1 slit washer.
- (2) Disengage 2 claws and remove the control plate.

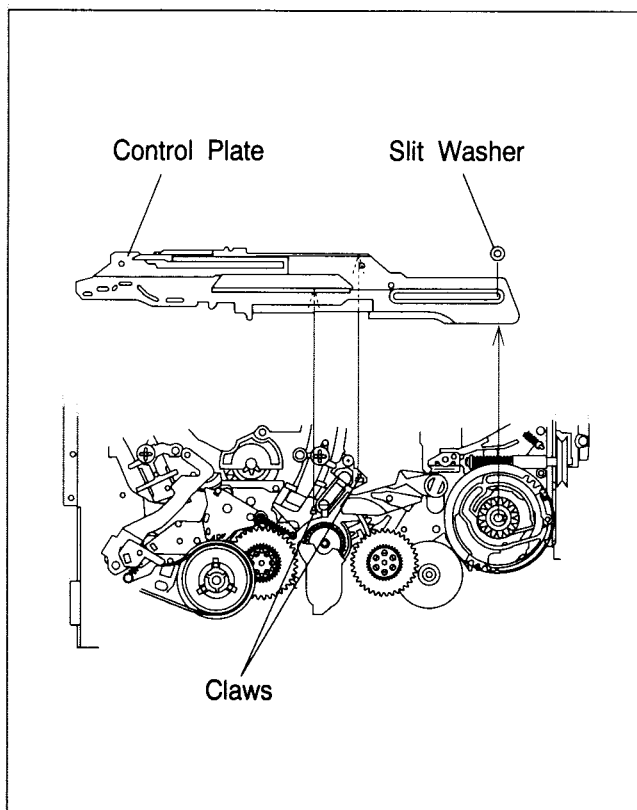


Fig.2-5-14

### 2.5.9 Sub Brake(take-up),Control Cam

- (1) Disengage 1 spring (a) and 1 hook then remove the sub brake (take-up).
- (2) Disengage 1 claw and remove the control cam.

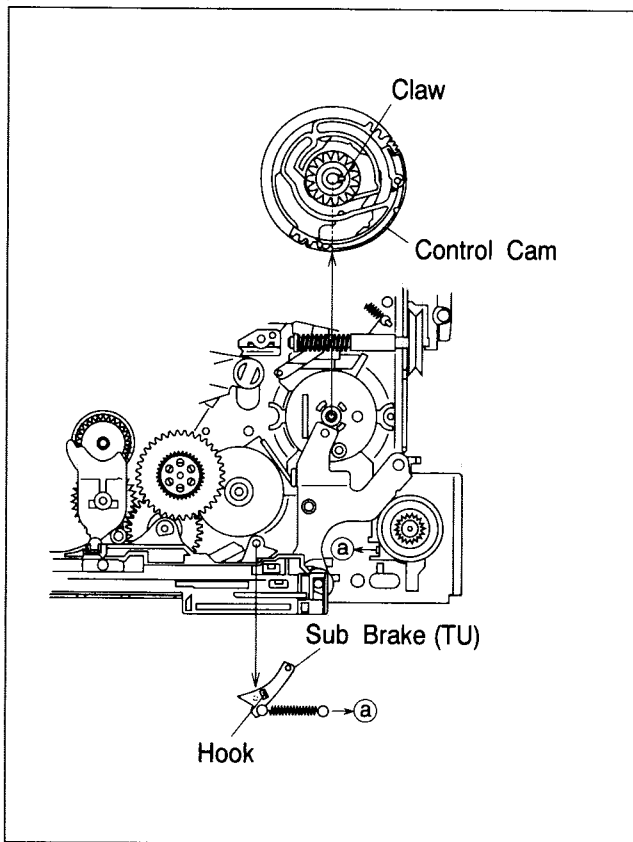


Fig.2-5-15

### 2.5.10 Slide Plate

- (1) Disengage 7 claws from bottom of the mechanism assembly and remove the slide plate.

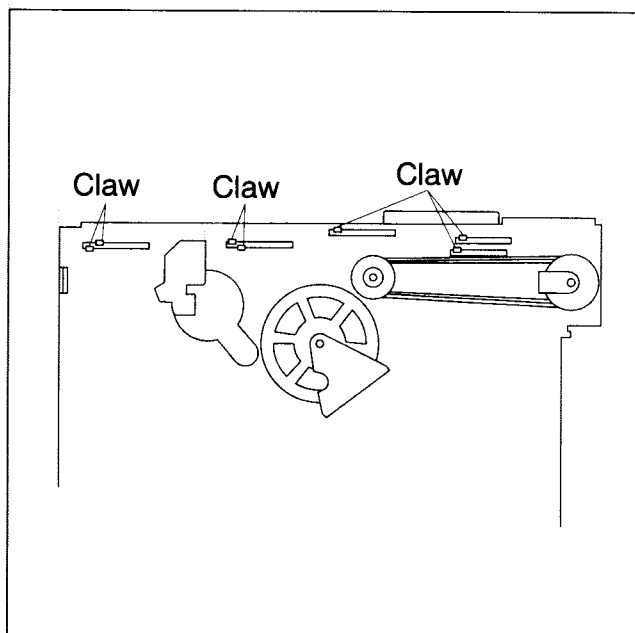


Fig. 2-5-16

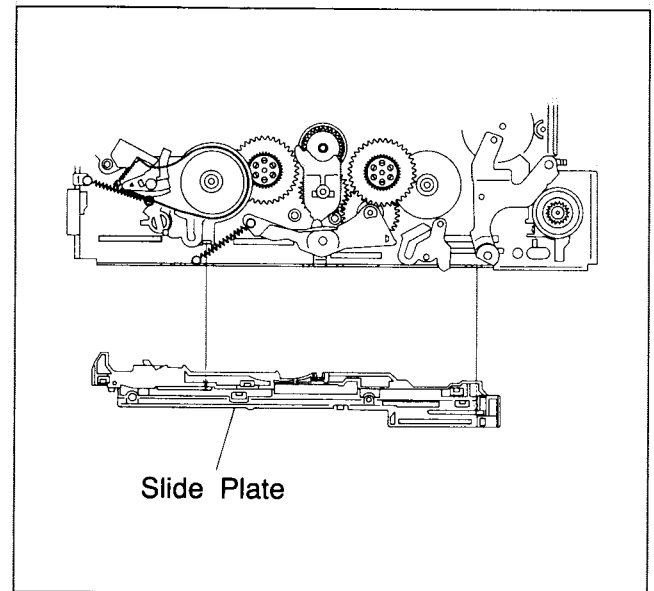


Fig. 2-5-17

### 2.5.11 Change Lever,Rotary Encoder

- (1) Remove the change lever.
- (2) Disengage 2 claws and remove the rotary encoder.
- (3) When installing the rotary encoder, align the triangle mark as indicated in Fig. 2-5-18.

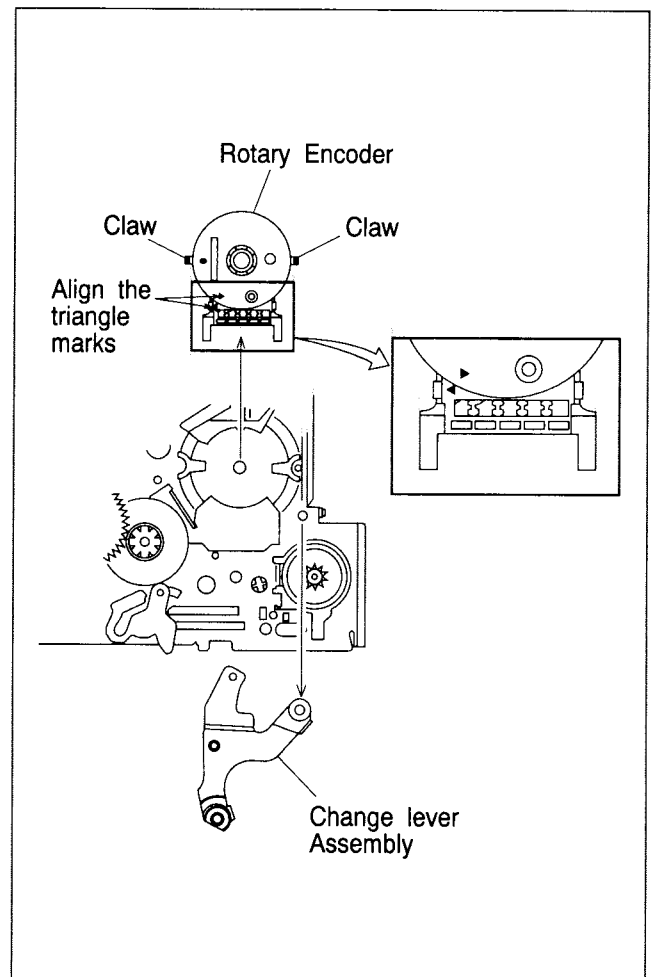


Fig. 2-5-18

### 2.5.12 Sub Brake (supply),Tension Band Assembly, Tension Arm Assembly, Take-up Lever Assembly,Slit Disk(supply)

- (1) Disengage 1 spring (a).
- (2) Disengage 1 claw and remove the sub brake (supply).
- (3) Take out 1 spring (b) and slit washer.

- (4) Remove the tension arm assembly with tension band assembly.
- (5) Remove the take-up lever assembly.
- (6) Take out the slit washer and remove the slit disk(supply).

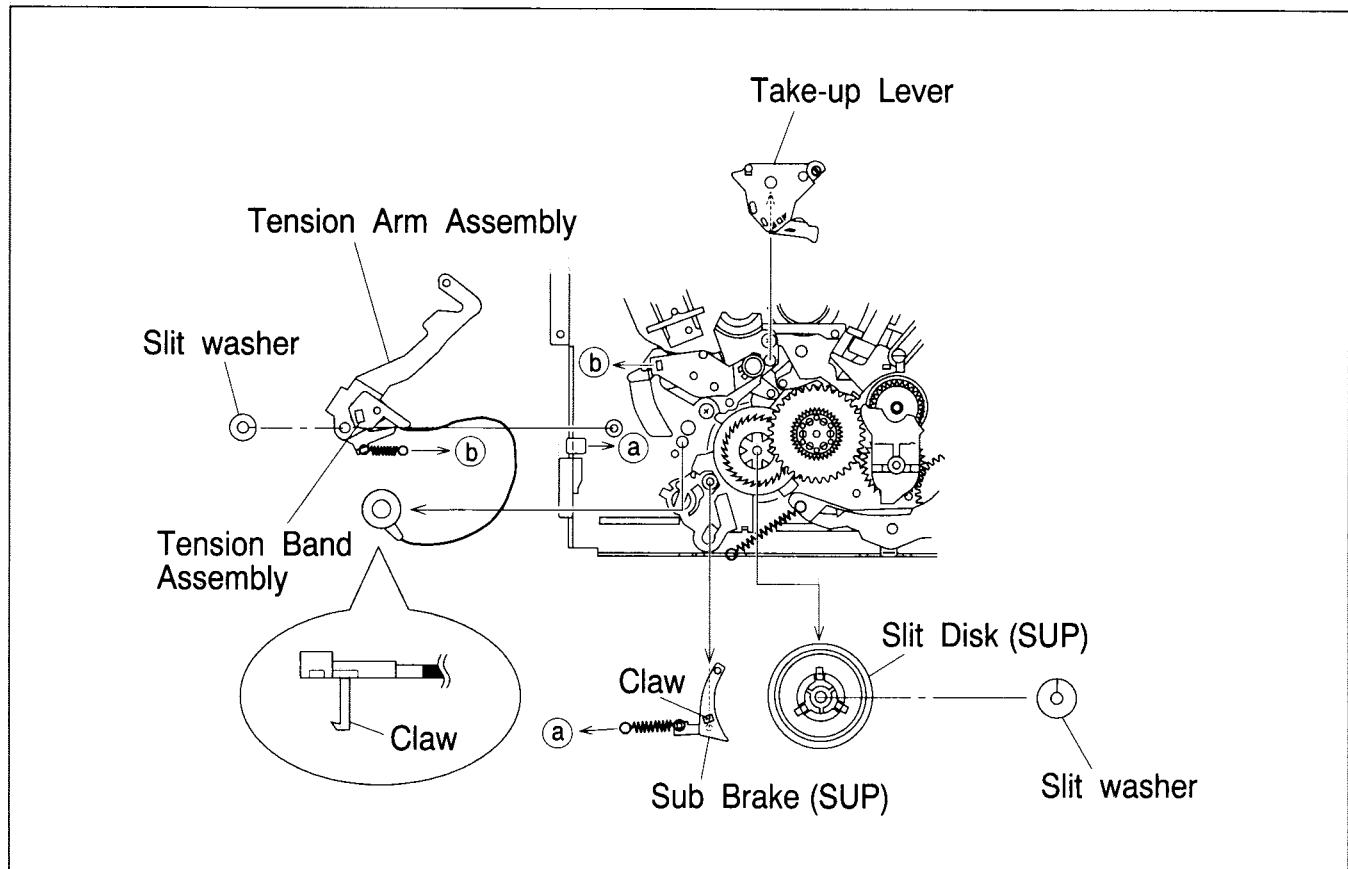


Fig. 2-5-19

### 2.5.13 Take-up Head,Tension Arm Lever

- (1) Remove the take-up head and tension arm lever.

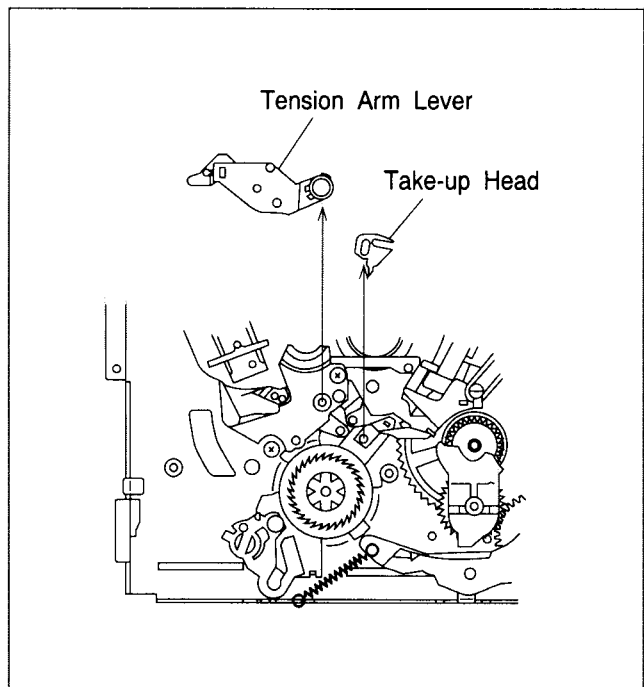


Fig.2-5-20

### 2.5.14 Guide Rail

- (1) Take out 5 screws (A) and 1 screw (B).
- (2) Disengage 4 claws and remove the guide rail.

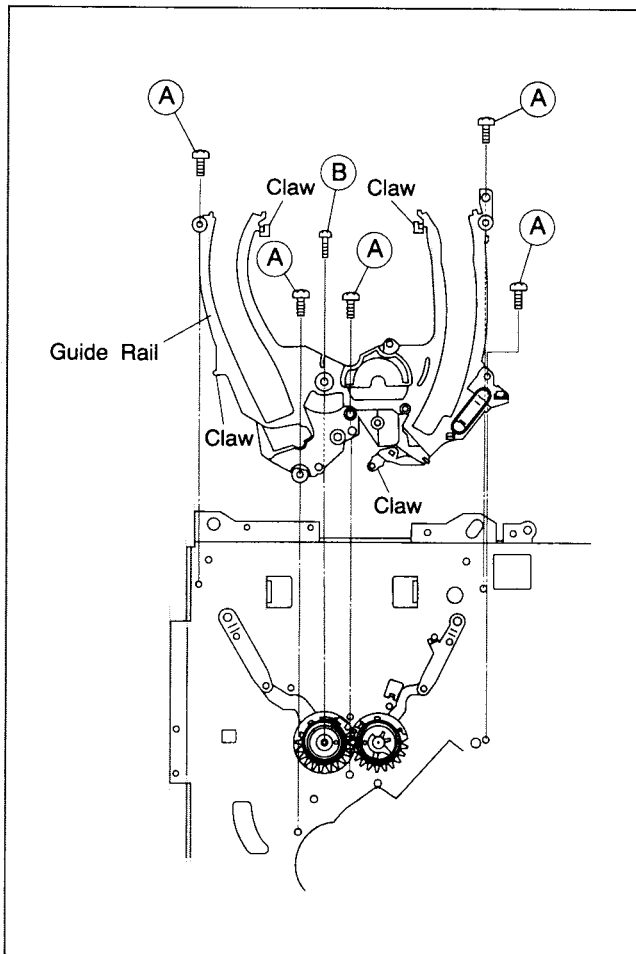


Fig. 2-5-21

### 2.5.15 Stator Assembly

- (1) Take out 2 screws (A).
- (2) Remove the stator assembly by lifting in the arrow-indicated direction (Take care that the brush spring does not jump out).
- (3) Remove the flat cable.
- (4) After reinstalling, be sure to perform PB switching point adjustment (See SECTION 3 ELECTRICAL ADJUSTMENT).

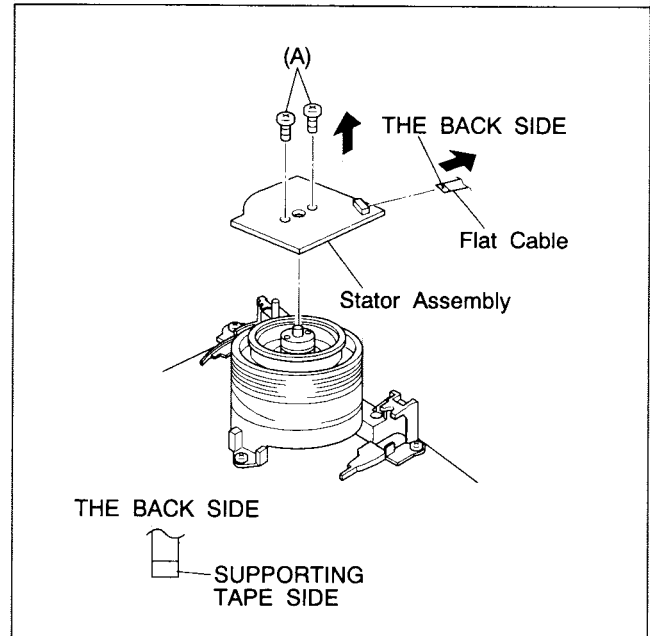


Fig. 2-5-22

**NOTE :** When refitting the connector, check that the flat wire is inserted correctly.

### 2.5.16 Rotor Assembly

- (1) Remove the stator Assembly.
- (2) Take out 2 screws (B) and remove the rotor Assembly.

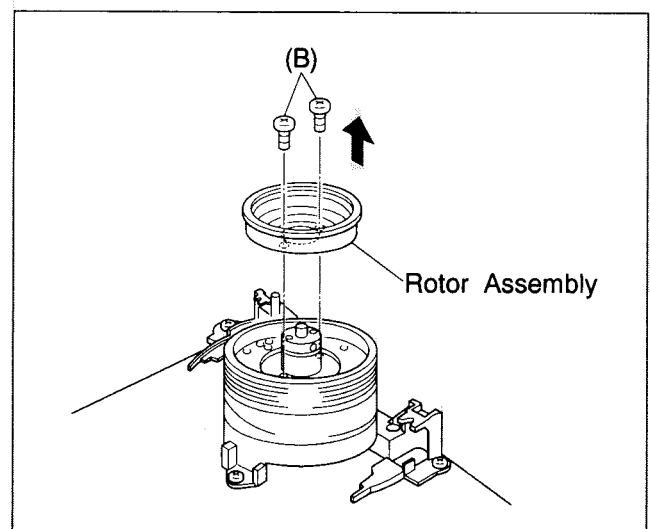


Fig.2-5-23

**Note:** When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.

- (3) Align the upper drum assembly and rotor assembly phase as indicated in Fig.2-5-24.
- (4) Overlap holes (a) of the upper drum assembly with holes (b) of the rotor assembly and secure with 2 screws (B) as indicated in Fig.2-5-23.

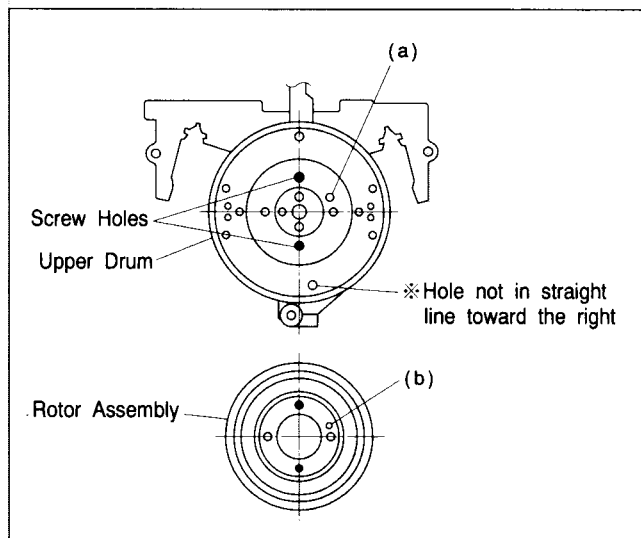


Fig. 2-5-24

### 2.5.17 Upper Drum Assembly

#### 1. Removal

- (1) Remove the stator assembly and rotor assembly (See 2.5.15 and 2.5.16).
- (2) Use a 1.5 mm hexagonal wrench to loosen the collar assembly screw and remove the collar assembly with brush, and remove the cap.
- (3) Remove the upper drum assembly and use tweezers to remove the washer.

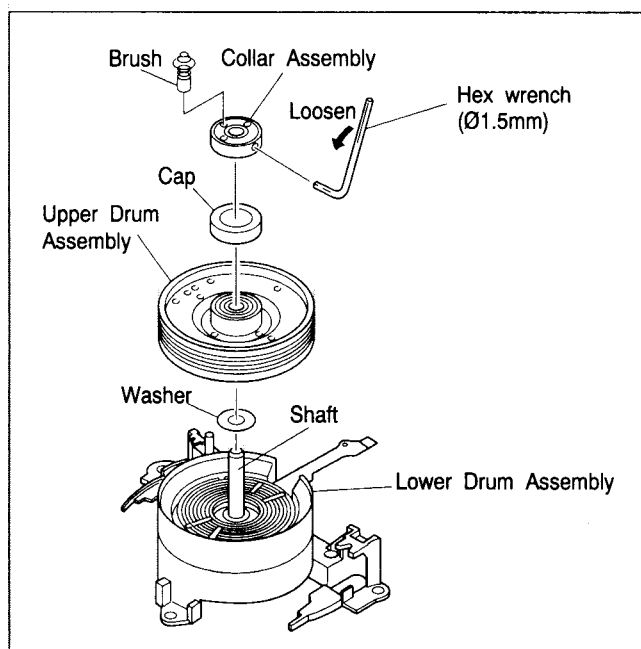


Fig. 2-5-25

**NOTE :** If the Brush is replaced, do not apply the grease to the contacts.

#### 2. Installation

- (1) Use an air brush to clean the lower drum assembly and the coil section of the new upper drum assembly.
- (2) Set a new washer on the drum shaft as indicated in Fig.2-5-25.

**NOTE :** Be sure to use the new washer when replace the upper drum assembly.

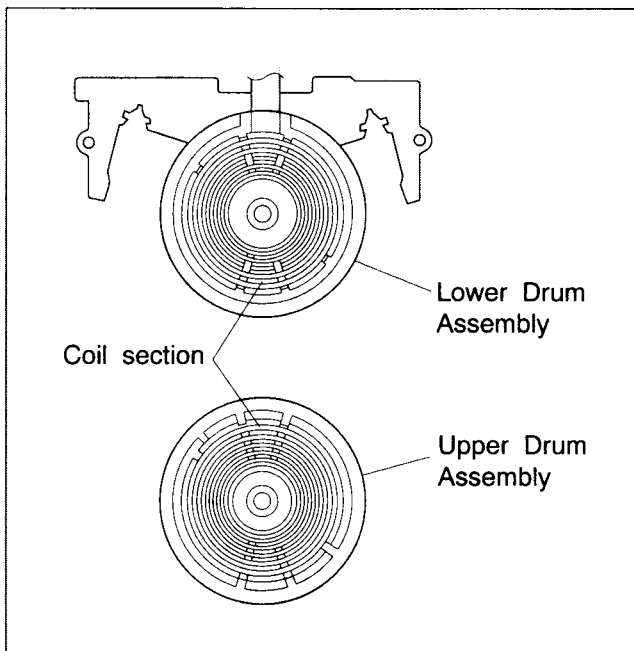


Fig.2-5-26

- (3) Note the top and bottom of the collar assembly and determine the position as indicated in Fig.2-5-27.

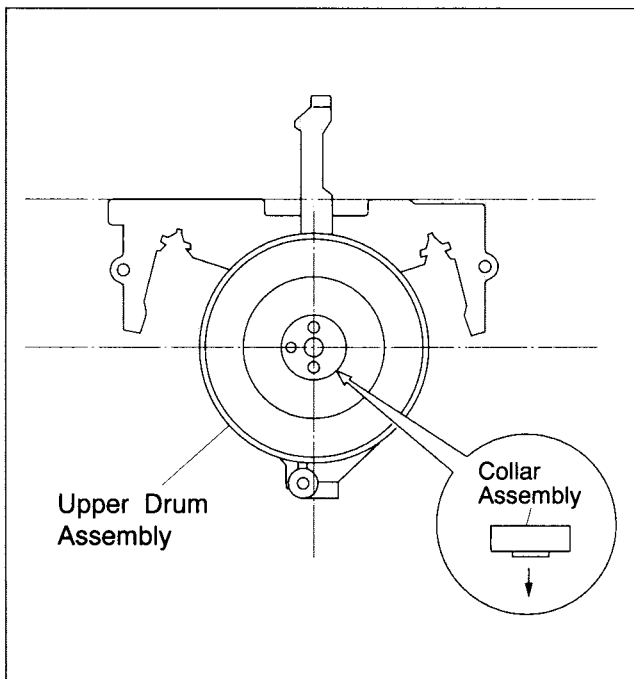


Fig.2-5-27

- (4) While pressing the collar assembly evenly from above with your fingertips, secure the hexagonal screw.

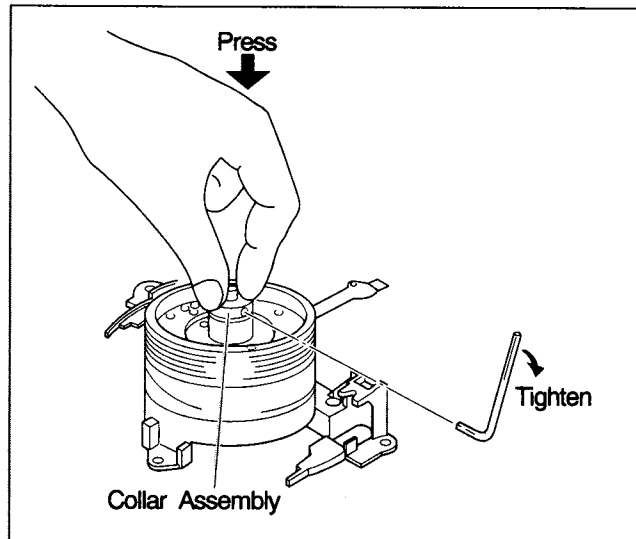


Fig.2-5-28

- (5) After installing, gently turn the upper drum by hand and confirm normal rotation.
- (6) Install the rotor assembly and stator assembly (See 2.5.15 and 2.5.16).
- (7) Clean the upper and lower drum assembly and perform the following adjustments;
- PB switching point adjustment
  - Slow tracking preset adjustment
  - Compatibility adjustment ( be sure to check EP mode)

## 2.6 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

### 2.6.1 Precaution

The rotary encoder and syscon circuit are closely interrelated. Therefore, the rotary encoder and control cam connection determines the operations of mechanical parts such as plates, gears, brakes, etc. Correct positioning of these parts is essential for smooth tape loading and mechanical operations.

### 2.6.2 Loading Arm Assembly (supply, take-up)

- (1) Install the supply loading arm assembly and the take-up loading arm assembly so that their positioning markings on the respective gear face each other and the holes of their arms correspond to the holes on the main deck assembly respectively.
- (2) After setting the guide rails, engage the pole base assemblies with the tip of the loading arms respectively. Then, enter the mechanism into the unloading mode to return the pole base assemblies to the front position.
- (3) Reassemble the peripheral parts of the guide rail to its original position.

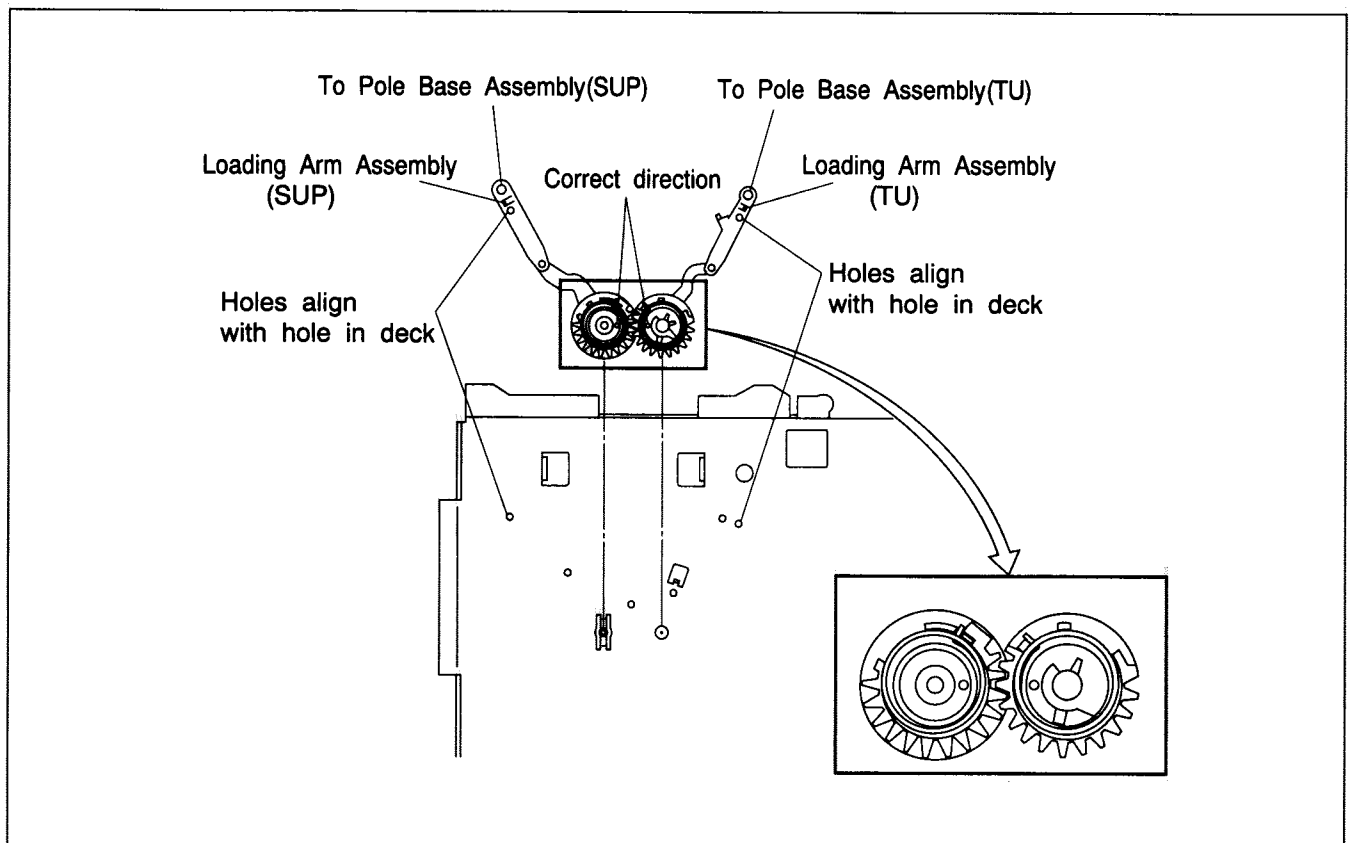


Fig. 2-6-1

### 2.6.3 Rotary Encoder, Change Lever, Control Cam

- (1) When reinstalling the rotary encoder, adjust its position so as to fit the triangle marks each other and push it deep until it is locked by the claws.
- (2) When reinstalling the change lever, set it so as to make its positioning hole correspond to the hole of the main deck assembly.
- (3) When re-engaging the control cam, lower the capstan brake assembly while setting it so as to make its positioning hole correspond to the hole of the main deck assembly.

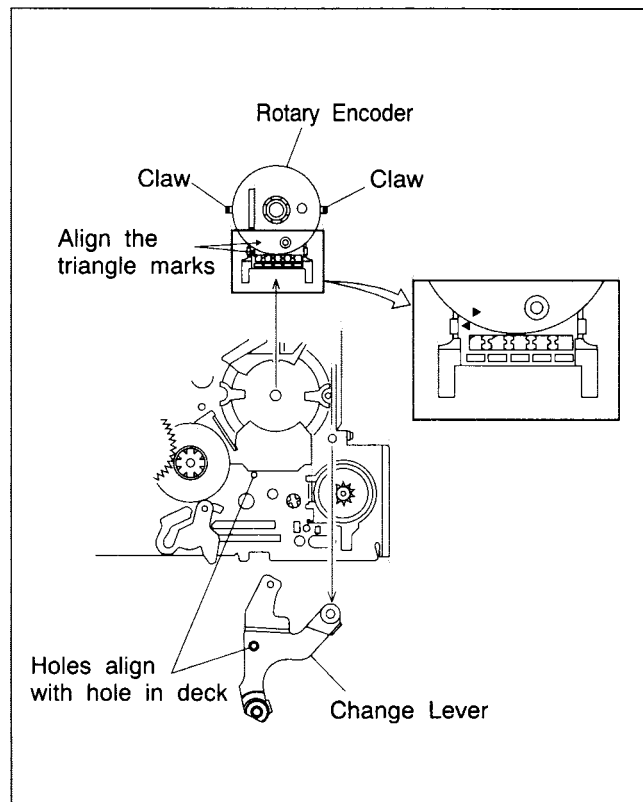


Fig. 2-6-2

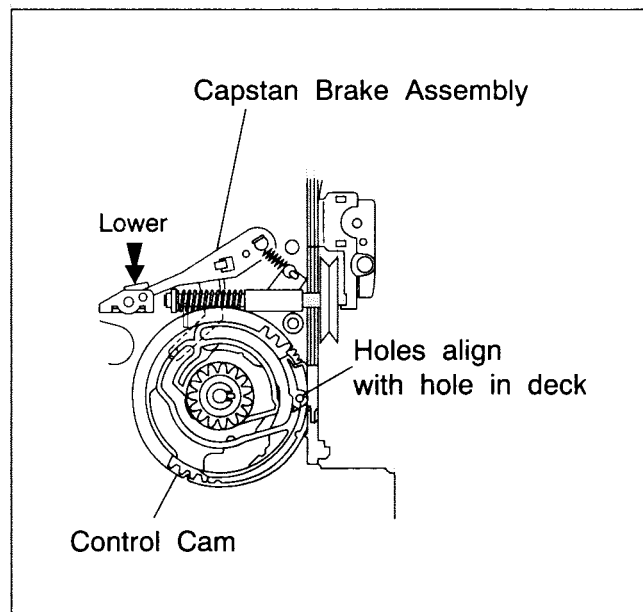


Fig. 2-6-3

### 2.6.4 Slide Plate

- (1) Lower both the main brake assembly (supply and take-up) until they touch the edge of the main deck assembly while reinstalling the slide plate so as to make the respective positioning holes of the main brake assembly correspond to the holes on the main deck assembly.

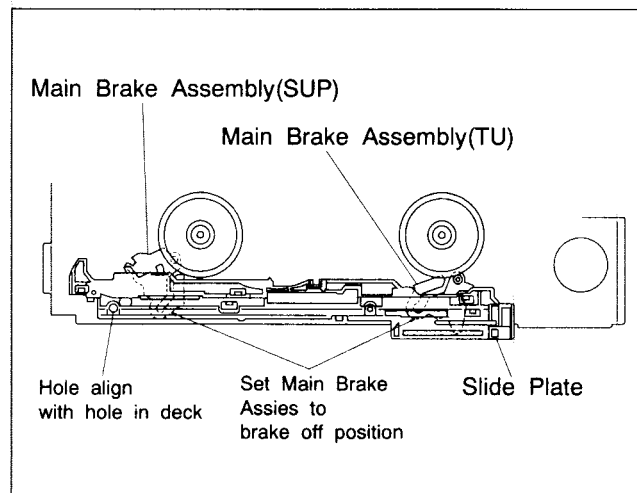


Fig.2-6-4

### 2.6.5 Control Plate

- (1) Reinstall the control plate so as to set the two positioning holes of it on the holes on the main deck assembly respectively and to set the positioning hole of the take-up lever on the hole of the main deck at the same time. When adjusting the hole position of the take-up lever, use a pair of tweezers to hold and move it since it is pulled by a tension spring.
- (2) After reinstalling the control plate, fix it with the slit washer and control bracket.

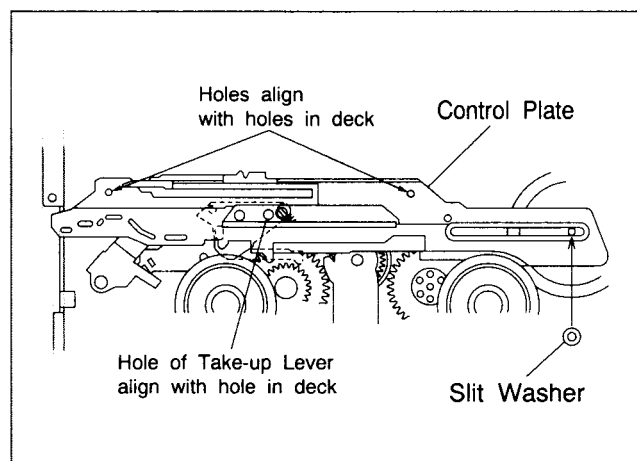


Fig. 2-6-5



## 2.7 COMPATIBILITY ADJUSTMENT

- Notes:**
- Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.
  - To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.

### 2.7.1 Checking/Adjustment of FM Waveform Linearity

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.F.F) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHP, observe the FM waveform.
- (3) Press the "AUTO" buttons of the remote controller during playback. (This also brings tracking to the center.)
- (4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (Fig.2-7-1)
- (5) Slightly loosen the set screw under the pole base assembly with a 1.25 mm hexagonal wrench (Take care not to loosen too much). (Fig.2-7-2)
- (6) Reduce the FM waveform while pressing the channel buttons (+, -) during playback. If a drop in level is found on the left side as shown in Fig.2-7-3, turn the guide roller of the pole base assembly (supply side) with the roller driver (PTU94002) to make the FM waveform linear. If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the roller driver to make it linear. (Fig.2-7-3)
- (7) Then play MHP-L and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
- (8) After adjustment, tighten the set screw under the pole base assembly. (Take care not to tighten too much)
- (9) After tightening the set screw, play the alignment tape MHP and MHP-L again to make sure that the FM waveform has correct variation.

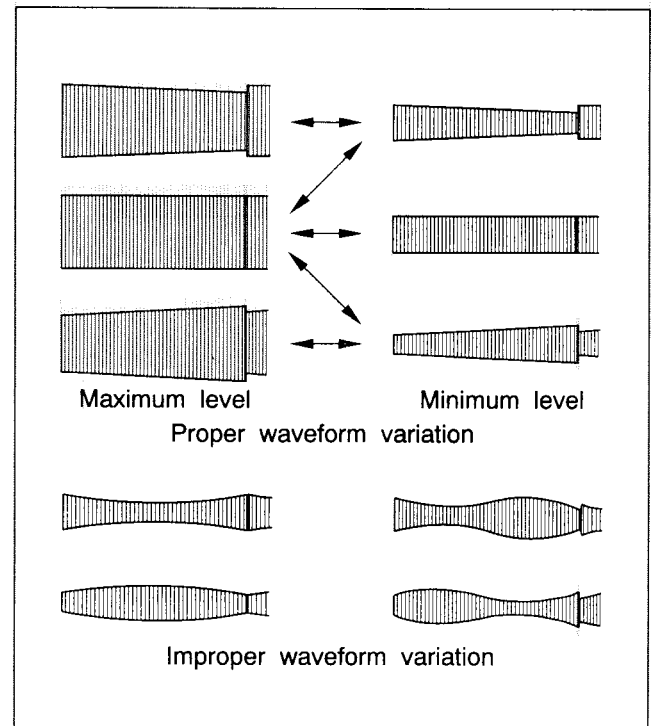


Fig. 2-7-1

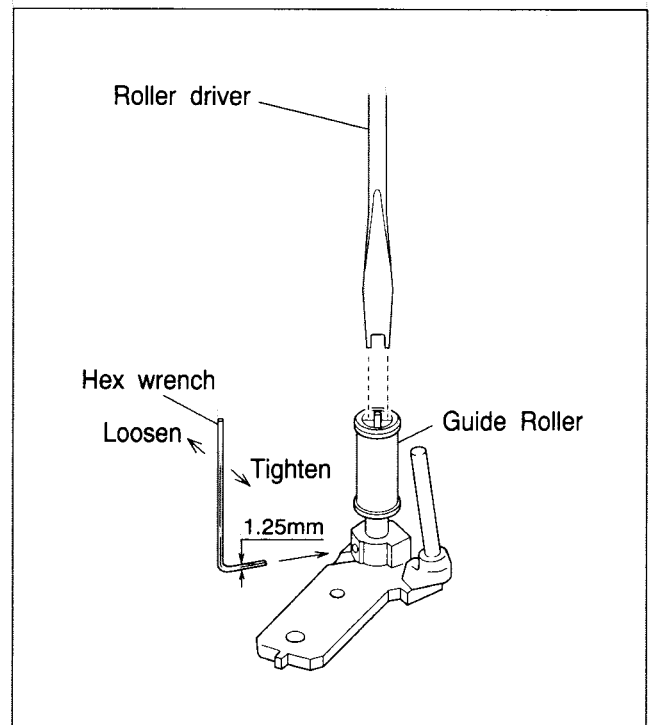


Fig. 2-7-2

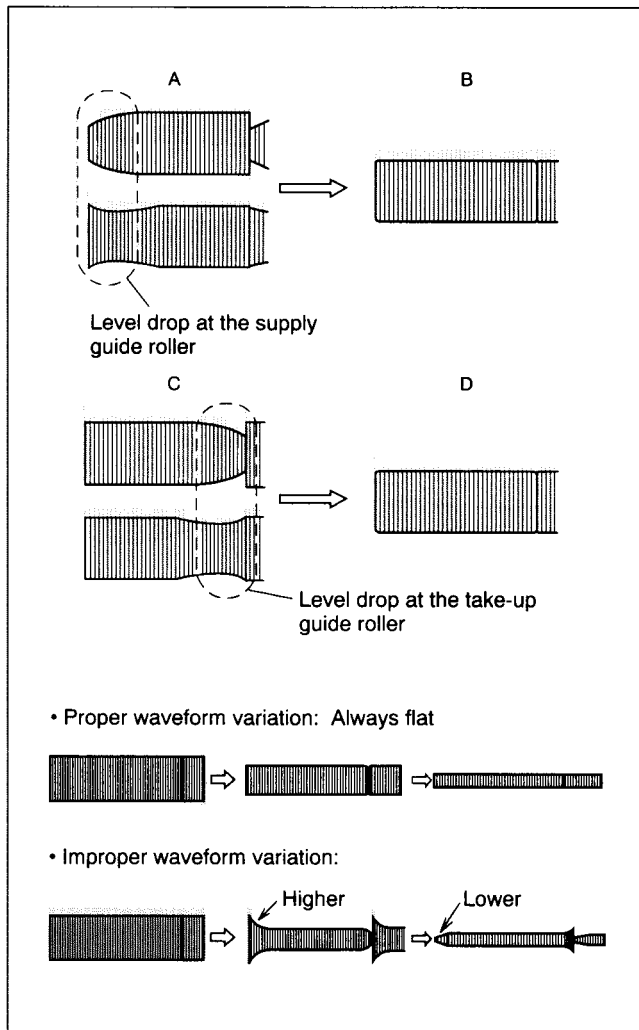


Fig. 2-7-3

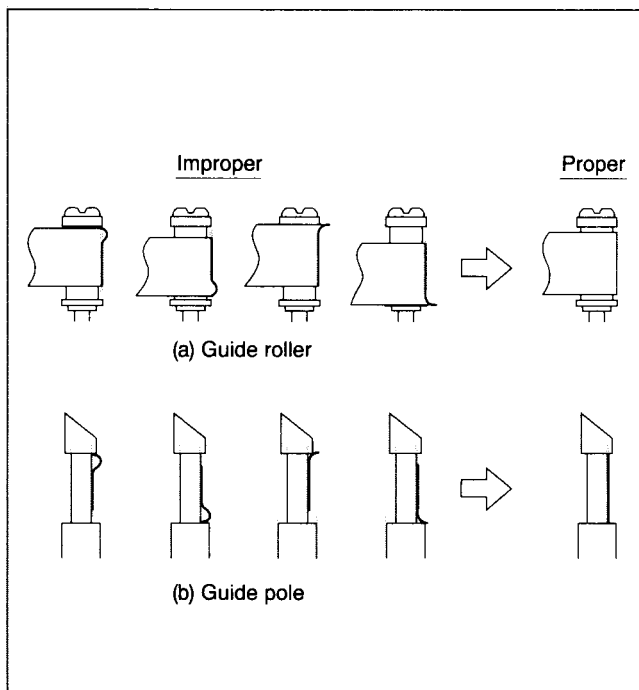


Fig. 2-7-4

## 2.7.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

**Note:** Set a temporary level of the height of the A/C head in advance to make the adjustment easier. (See Fig.2-5-4)

- (1) Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP1101 (CTL P) of the main board and observe the waveforms on both channels in the ALT mode.
- (2) Play the alignment tape MHP and adjust it by turning screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. Screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

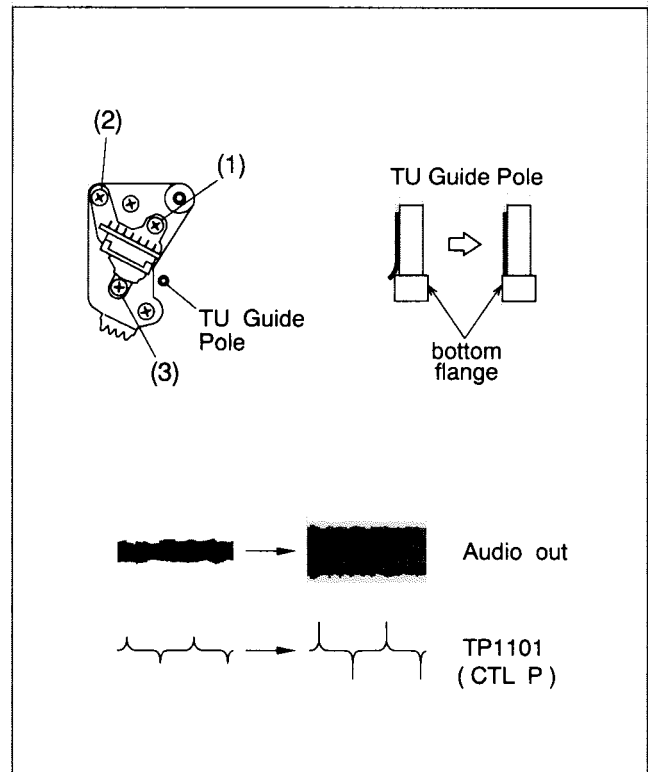


Fig. 2-7-5

## 2.7.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Play the alignment tape MHP and observe the FM waveforms.
- (3) Press the "AUTO" buttons of the remote controller during playback. (This also brings tracking to the center.)
- (4) Loosen screws (4) and (5) so that the A/C head position bit (PTU94010) is set as indicated in Fig.2-7-6.
- (5) Turn the A/C head position and first move the audio control head fully up to the capstan head. Then gradually return the audio control head toward the drum and stop it where the FM waveform reaches its maximum for the first time. Then tighten screw (4) temporarily.

- (6) Then play the alignment tape MHP-L.
- (7) Press the "AUTO" buttons of the remote controller during playback. (This also brings the tracking to the center.)
- (8) Perform the tracking operation and make sure that the FM waveform is at its maximum.
- (9) If it is not at maximum, loosen the temporarily tightened screw (4) and turn the A/C head position bit to bring the audio control head to a position, around where the waveform reaches its maximum for the first time. Then tighten screws (4) and (5).

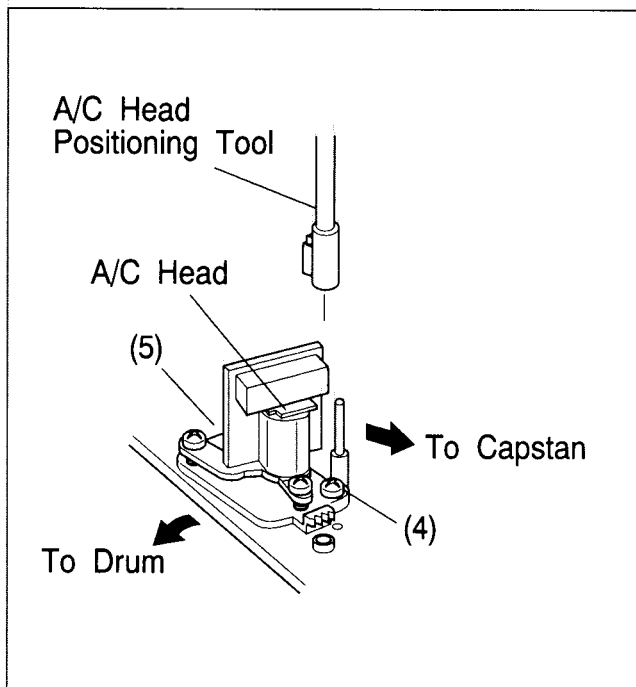


Fig. 2-7-6

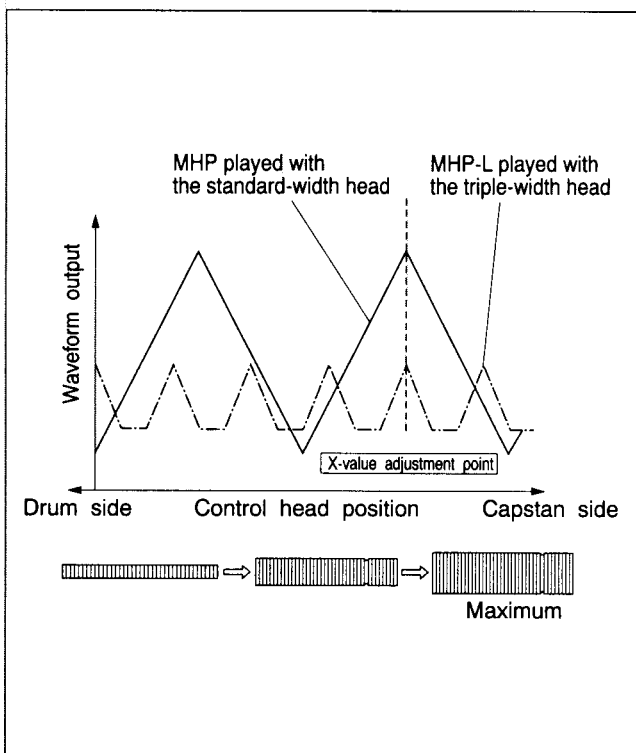


Fig. 2-7-7

## 2.7.4 Checking/Adjustment of the Tension Pole position

- (1) Check the back tension cassette gauge (PUJ48076-2) to make sure that the indicator points to 29 - 46 g-cm.
- (2) If the indicated value is outside this range, carry out the following adjustment steps.
  - 1) Select the mechanism servicing mode. (See 1.6 MECHANISM SERVICE MODE.)
  - 2) While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig.2-7-8).

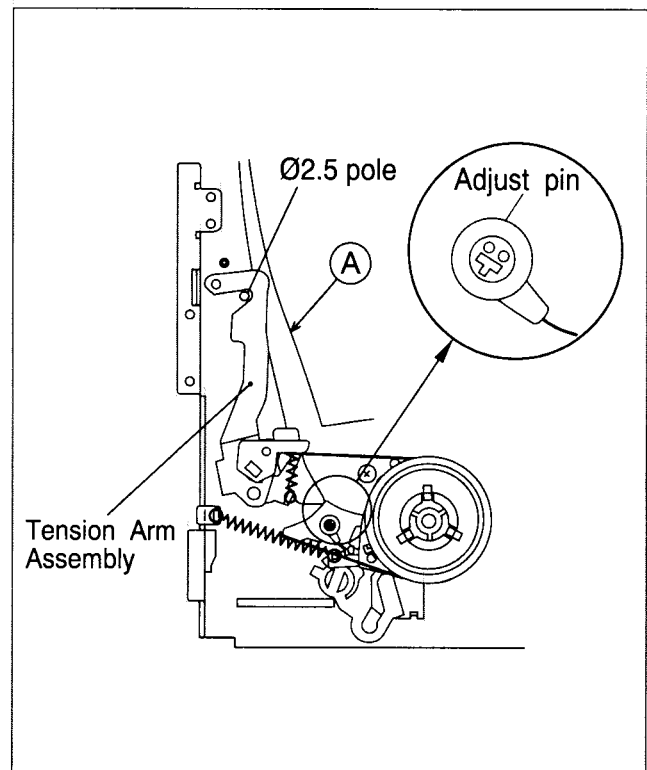


Fig. 2-7-8

## SECTION 3 ELECTRICAL ADJUSTMENT

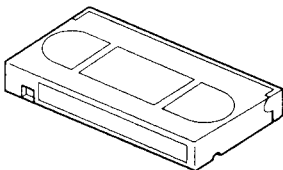
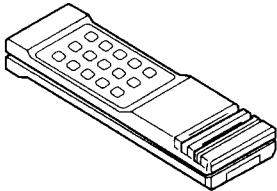
### 3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

#### 3.1.1 Required test equipment

- ① Color television or monitor
- ② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
- ③ Frequency counter
- ④ Digital voltmeter
- ⑤ Signal generator: RF/IF sweep/maker
- ⑥ Signal generator: NTSC color bar, stairstep
- ⑦ Recording tape
- ⑧ Digit-key remote controller(provided)

#### 3.1.2 Required adjustment tools

Alignment tape (SP,stairstep) MHP	Presetting unit PTU94008
	

#### 3.1.3 Color bar signal,color bar pattern

##### ● Color bar signal

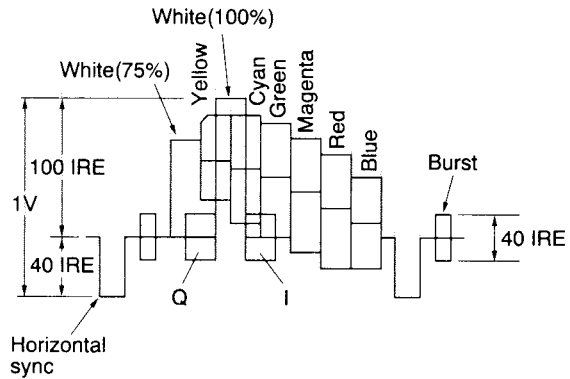


Fig.3-1-1 Color bar signal waveform

##### ● Color bar pattern

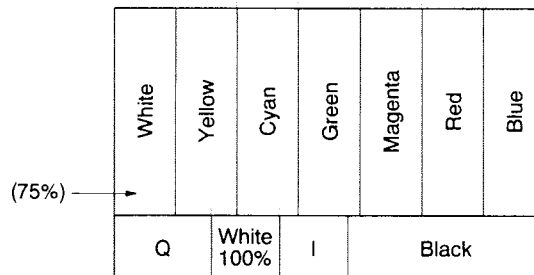


Fig.3-1-2 Color bar pattern

### 3.2 SERVO CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
  - Set VCR to the mode A by remote controller.

#### 3.2.1 PB switching point

Signal	• Alignment tape [MHP], Stairstep
Mode	• PB, Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Trigger slope (→)	• TP111(DRUM FF)
Adjustment tool	• Presetting unit [PTU94008]
Specification	• $6.5 \pm 0.5H$

- (1) Connect an oscilloscope to VIDEO OUT TERMINAL and external trigger from TP111 (negative slope).
- (2) Playback the stairstep signal of the alignment tape.
- (3) Press the "O" button of the presetting unit.
- (4) The adjustment is performed automatically. Once the adjustment is performed, the VCR will go into the STOP mode.
- (5) Playback the alignment tape again, confirm the switching point (See Fig.3-2-2).

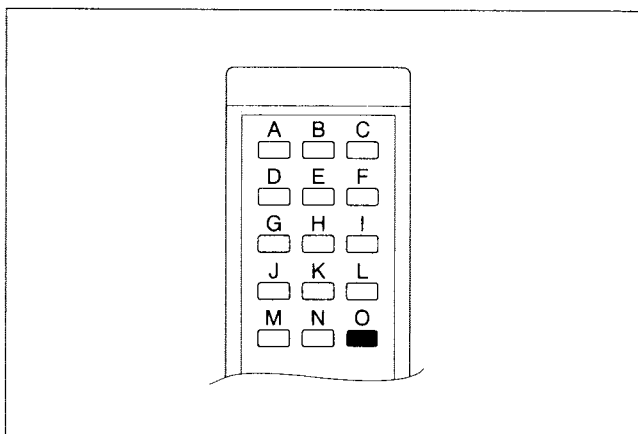


Fig.3-2-1 Presetting unit

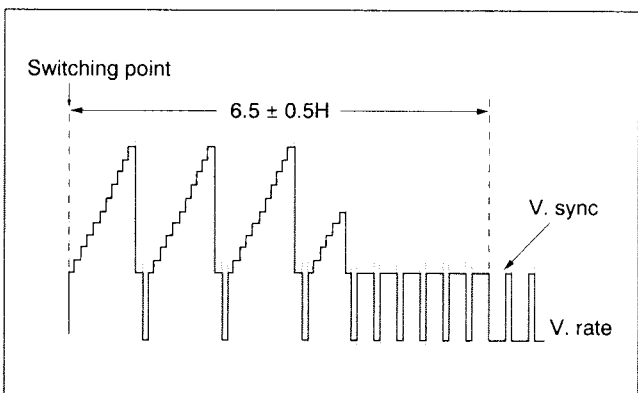


Fig.3-2-2 PB switching point

#### 3.2.2 Slow tracking preset

Signal	• Tuner or color bar
Mode	• SP/EP, REC → PB(SLOW) Automatic tracking OFF
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit [PTU94008]
Specification	• Minimum noise

**Note :** Set VCR to the mode A by remote controller.  
Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.

- (1) Record a color bar signal in the SP mode.
- (2) Playback recorded signal on the FWD slow mode.
- (3) Set the tracking control to the center position by simultaneously pressing the CH "▲" and "▼" buttons.
- (4) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B" or "C" buttons of the presetting unit.
- (5) Depress the STOP button.
- (6) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
- (7) Repeat steps (2) to (6) in REV slow mode.
- (8) Repeat steps (1) to (7) in EP mode.

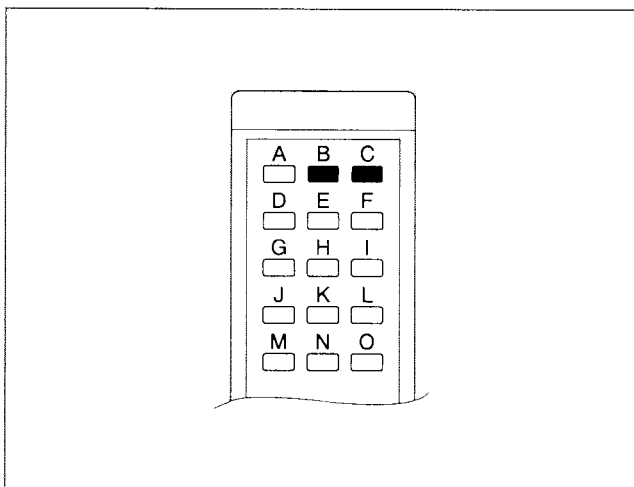


Fig.3-2-3 Presetting unit

### 3.3 VIDEO CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
  - Set VCR to the mode A by remote controller.

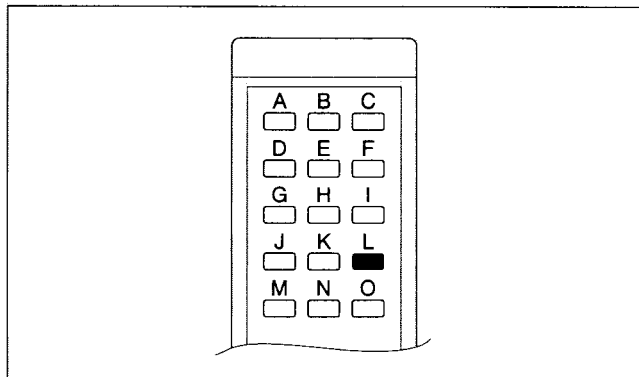


Fig.3-3-1 Presetting unit

#### 3.3.1 Auto picture


Signal	• Monoscope
Mode	• Auto picture : OFF • REC then PB • SP/EP
Adjustment tool	• Presetting unit[PTU94008]
Specification	• STOP mode

- (1) Record a monoscope signal in the SP mode.
- (2) Playback the recorded signal.
- (3) Press the "L" button of the presetting unit during playback.
- (4) Confirm that VCR will go into the STOP mode.
- (5) Repeat steps (2) to (4) in the EP mode.

## SECTION 4 CHARTS AND DIAGRAMS

### NOTES OF SCHEMATIC DIAGRAM

#### Safety precautions

The Components identified by the symbol  are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

#### 1. Units of components on the schematic diagram

Unless otherwise specified.

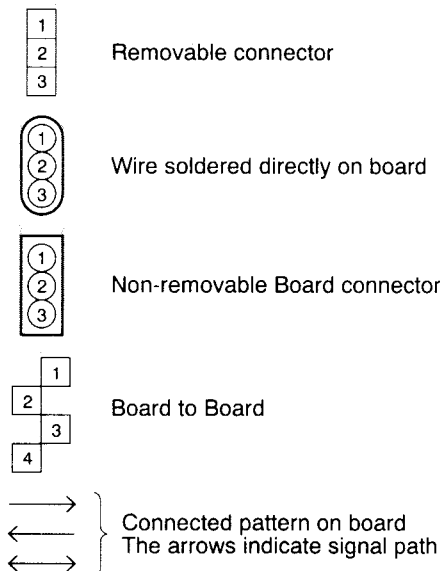
- 1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).  
Chip resistors are 1/16 W.  
K: K $\Omega$  (1000 $\Omega$ ), M: M $\Omega$  (1000K $\Omega$ )
- 2) All capacitance values are in  $\mu$ F, (P: PF).
- 3) All inductance values are in  $\mu$ H, (m: mH).
- 4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

#### 2. Indications of control voltage

AUX : Active at high

AUX or AUX(L) : Active at low

#### 3. Interpreting Connector indications

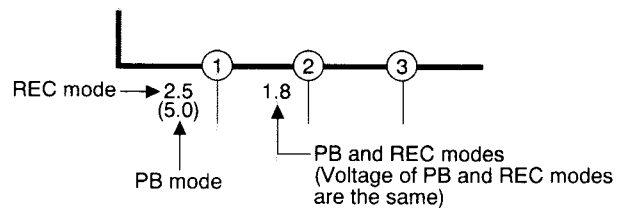


#### 4. Voltage measurement

- 1) Video circuits  
REC : Colour bar signal in SP mode, normal VHS mode  
PB : Alignment tape, colour bar SP mode, normal VHS mode  
— : Unmeasurable or unnecessary to measure
- 2) Audio circuits  
REC : 1KHz, -8 dBs sine wave signal in SP mode, Normal VHS mode  
PB : REC then playback it
- 3) Movie Camera circuits  
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode

#### 4) Indication on schematic diagram

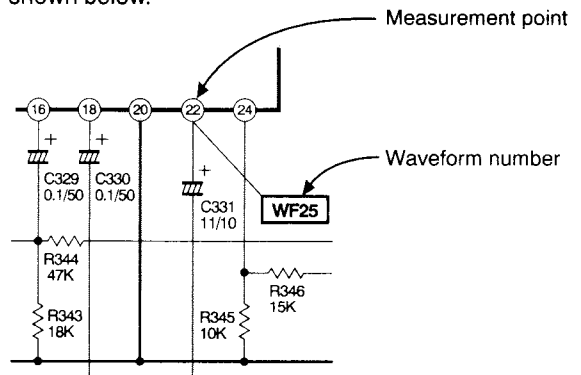
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



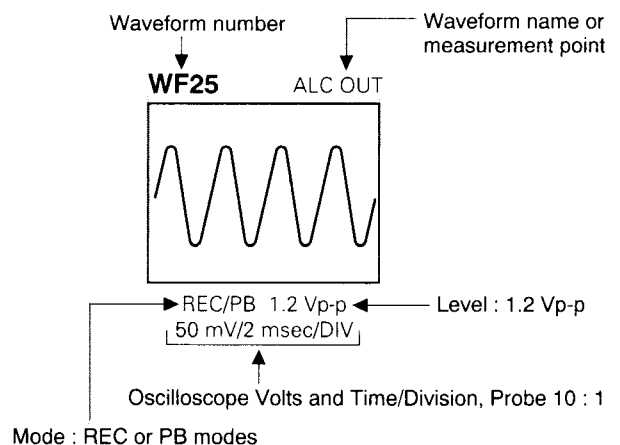
**Note:** If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

#### 5. Waveform measurement

- 1) Video circuits  
REC : Colour bar signal in SP mode, normal VHS mode  
PB : Alignment tape, colour bar SP mode, normal VHS mode
- 2) Audio circuits  
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode  
PB : REC then playback it
- 3) Movie Camera circuits  
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
- 4) Indication on schematic diagram  
Waveform indications on the schematic diagram are as shown below.

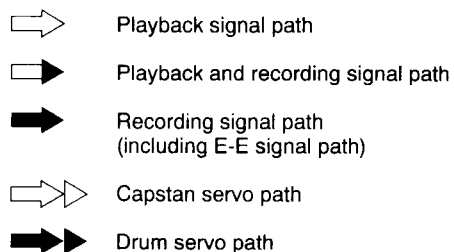


#### 5) Waveform indications

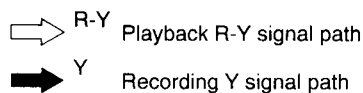


## 6. Signal path Symbols

The arrows indicate the signal path as follows.

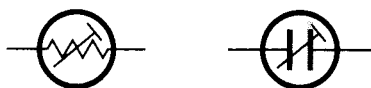


(Example)



## 7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



## 8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



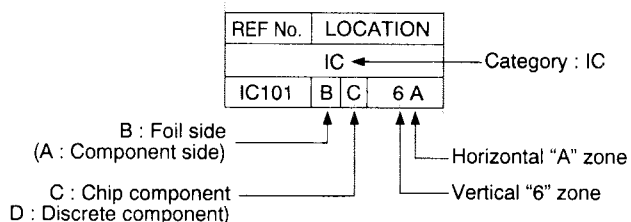
## CIRCUIT BOARD NOTES

### 1. Foil and Component sides

- 1) Foil side (B side) :  
Parts on the foil side seen from foil face (pattern face) are indicated.
- 2) Component side (A side) :  
Parts on the component side seen from component face (parts face) indicated.

### 2. Parts location guides

Parts location are indicated by guide scale on the circuit board.



### Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).





4.1 BOARD INTERCONNECTIONS

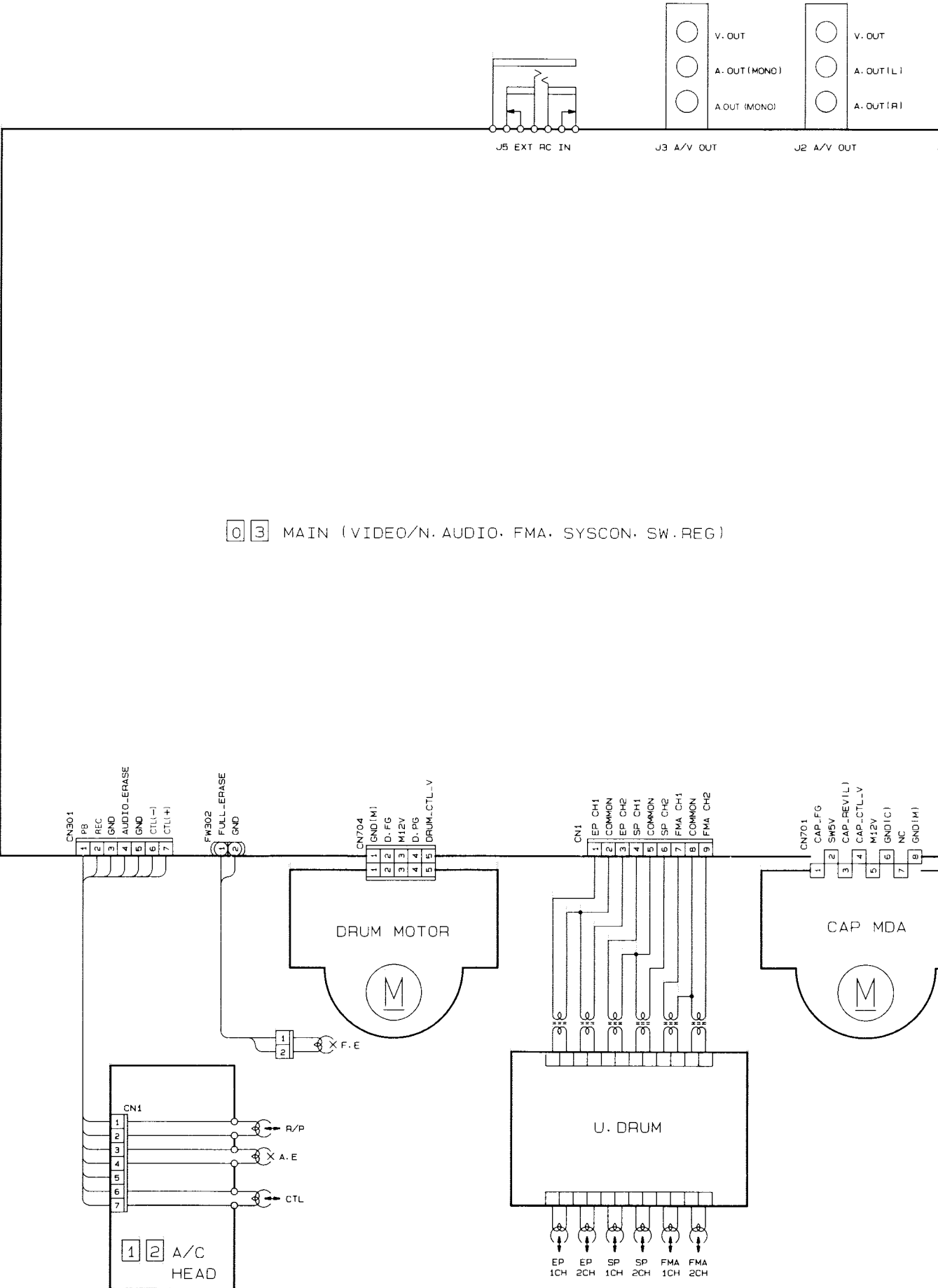
5

4

3

2

1

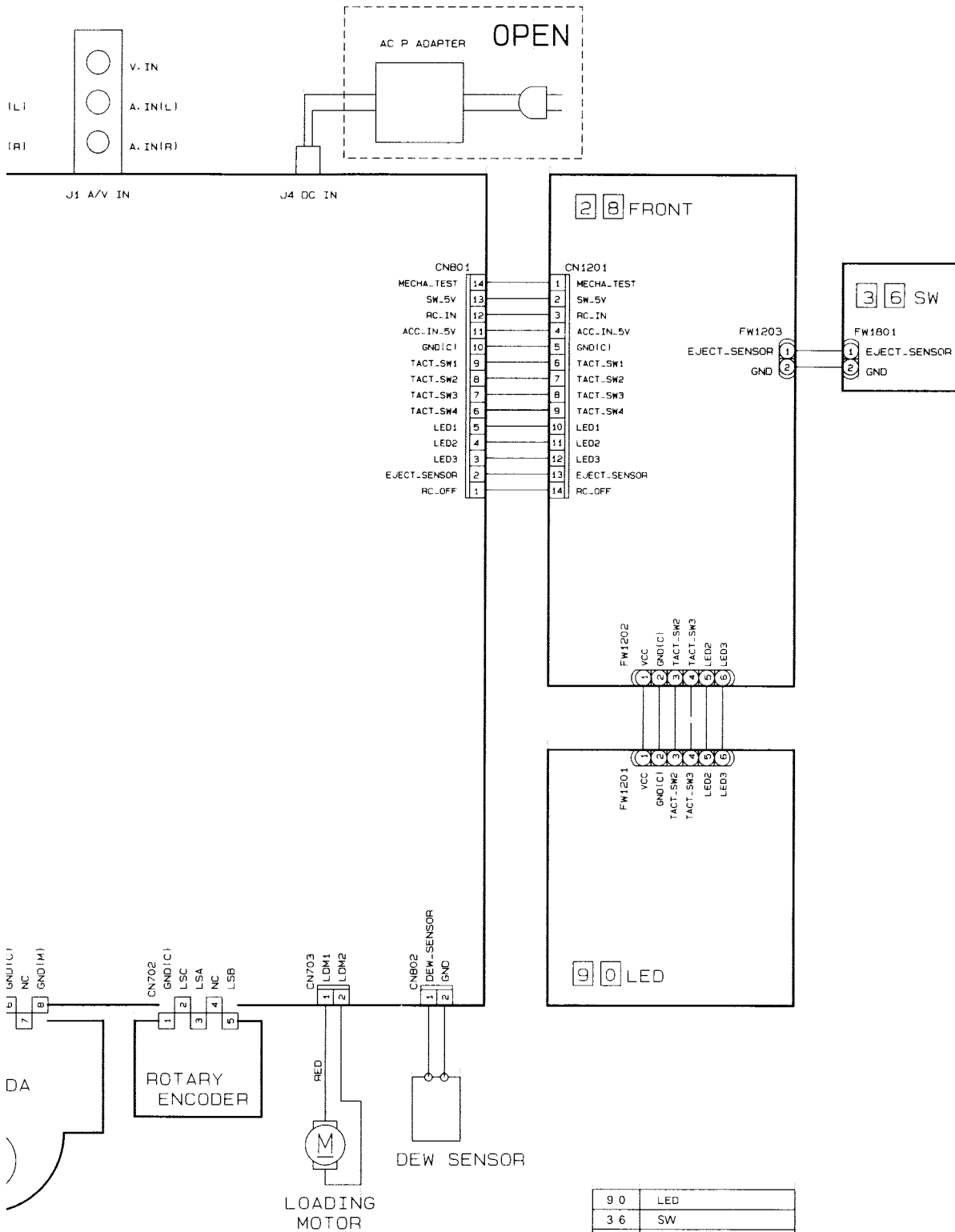


A

B

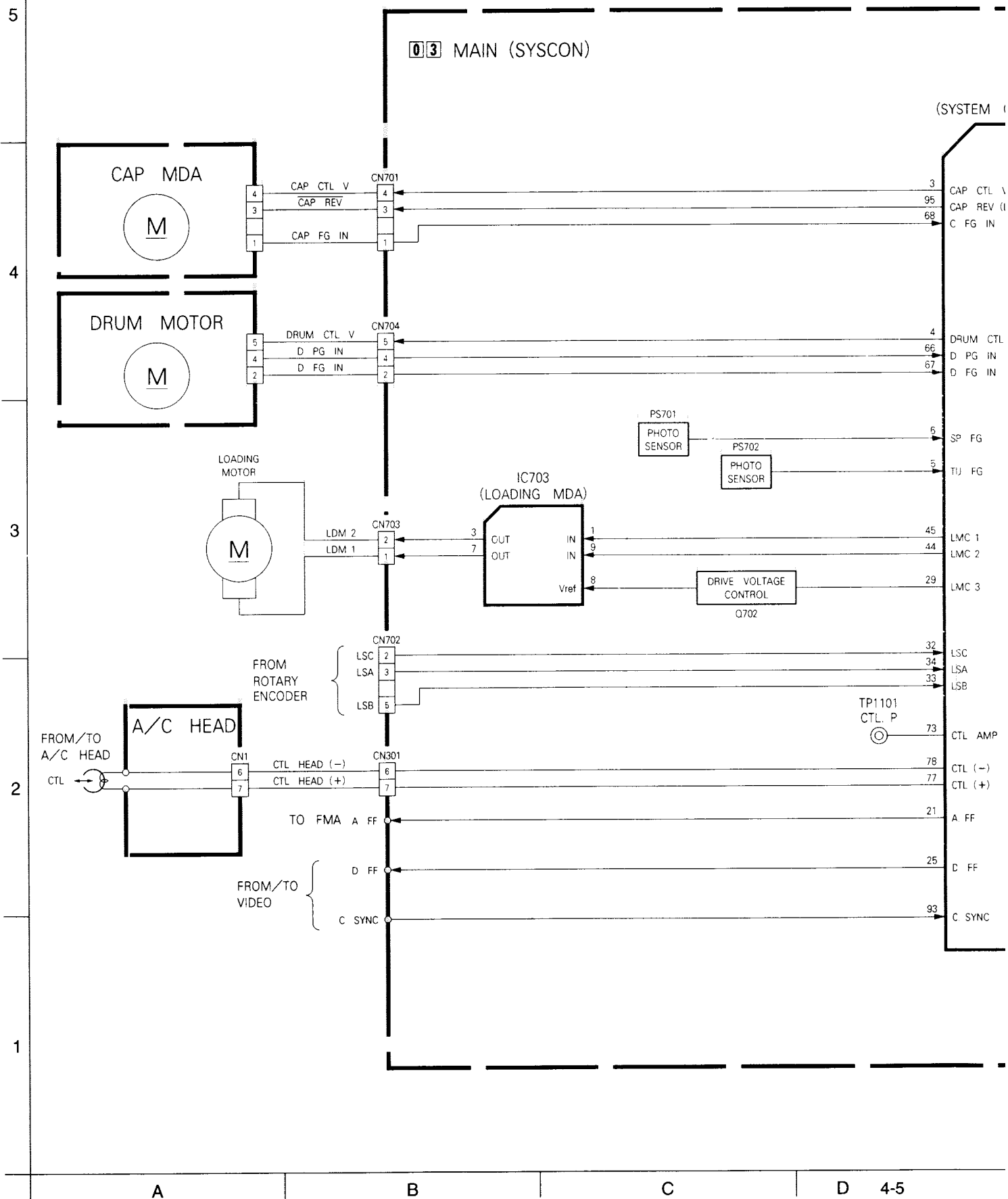
C

D

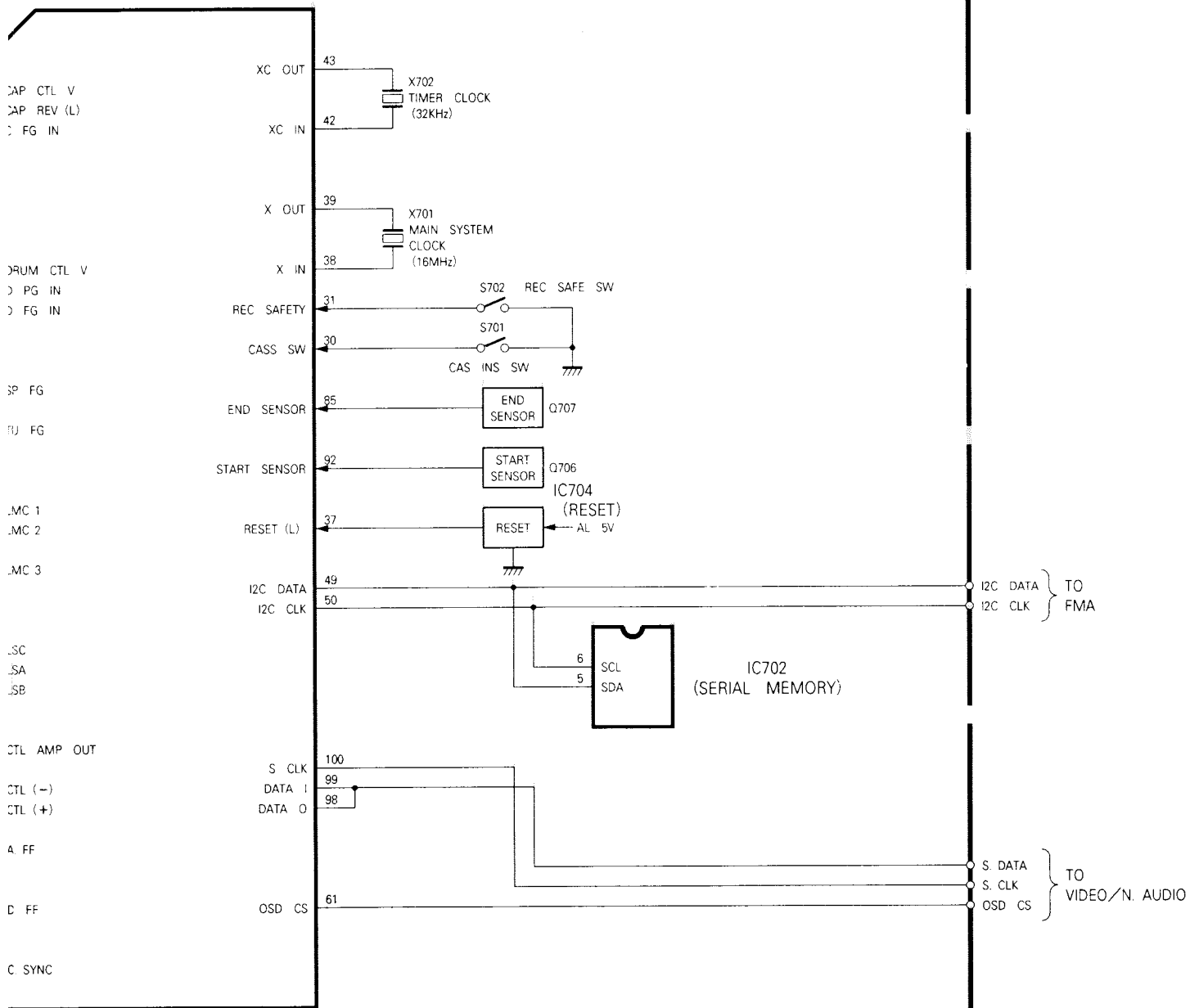


9 0	LED
3 6	SW
2 8	FRONT
1 2	A/C HEAD
0 3	MAIN
NO	NAME

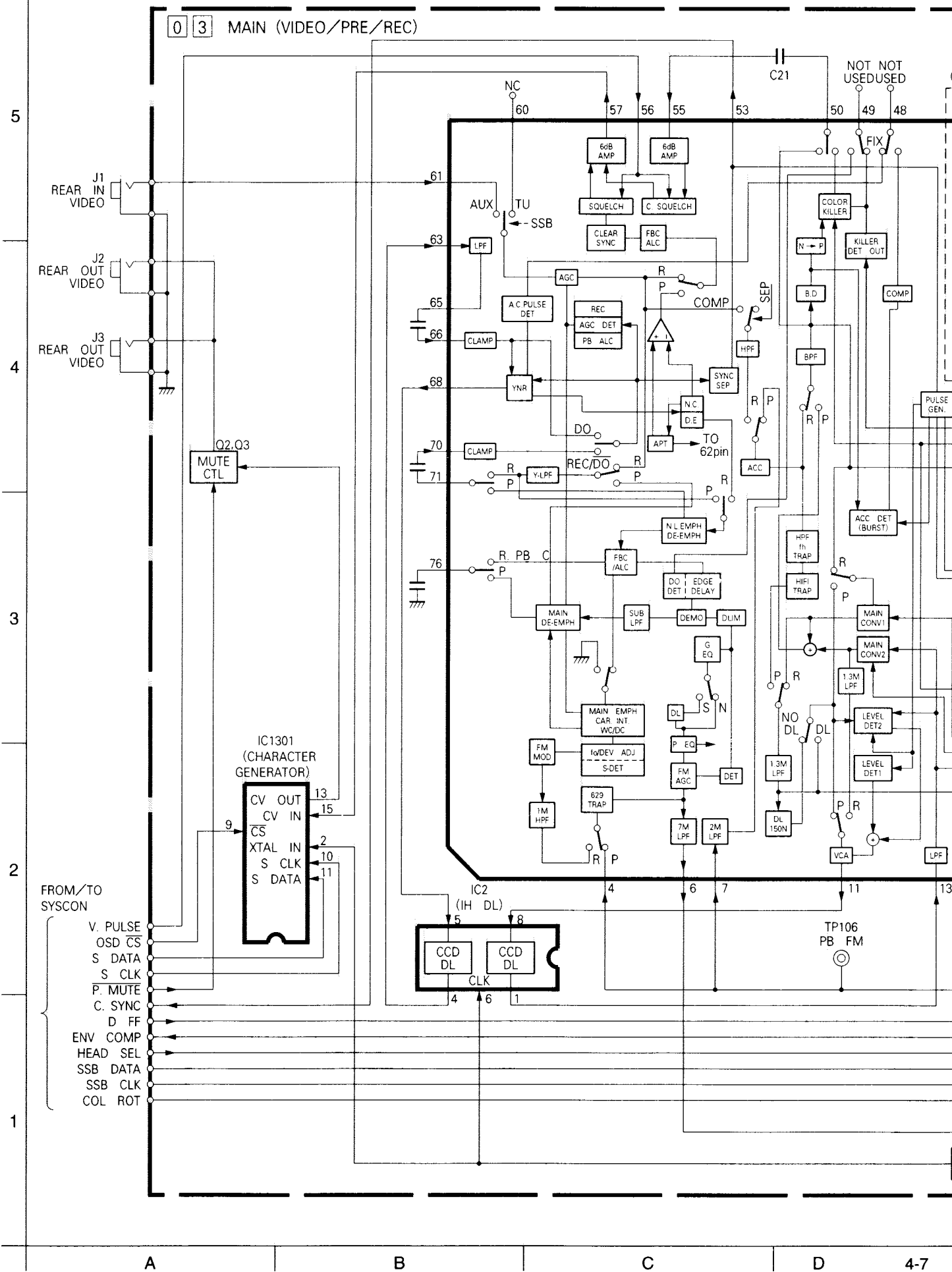
## 4.2 SYSTEM CONTROL BLOCK DIAGRAM

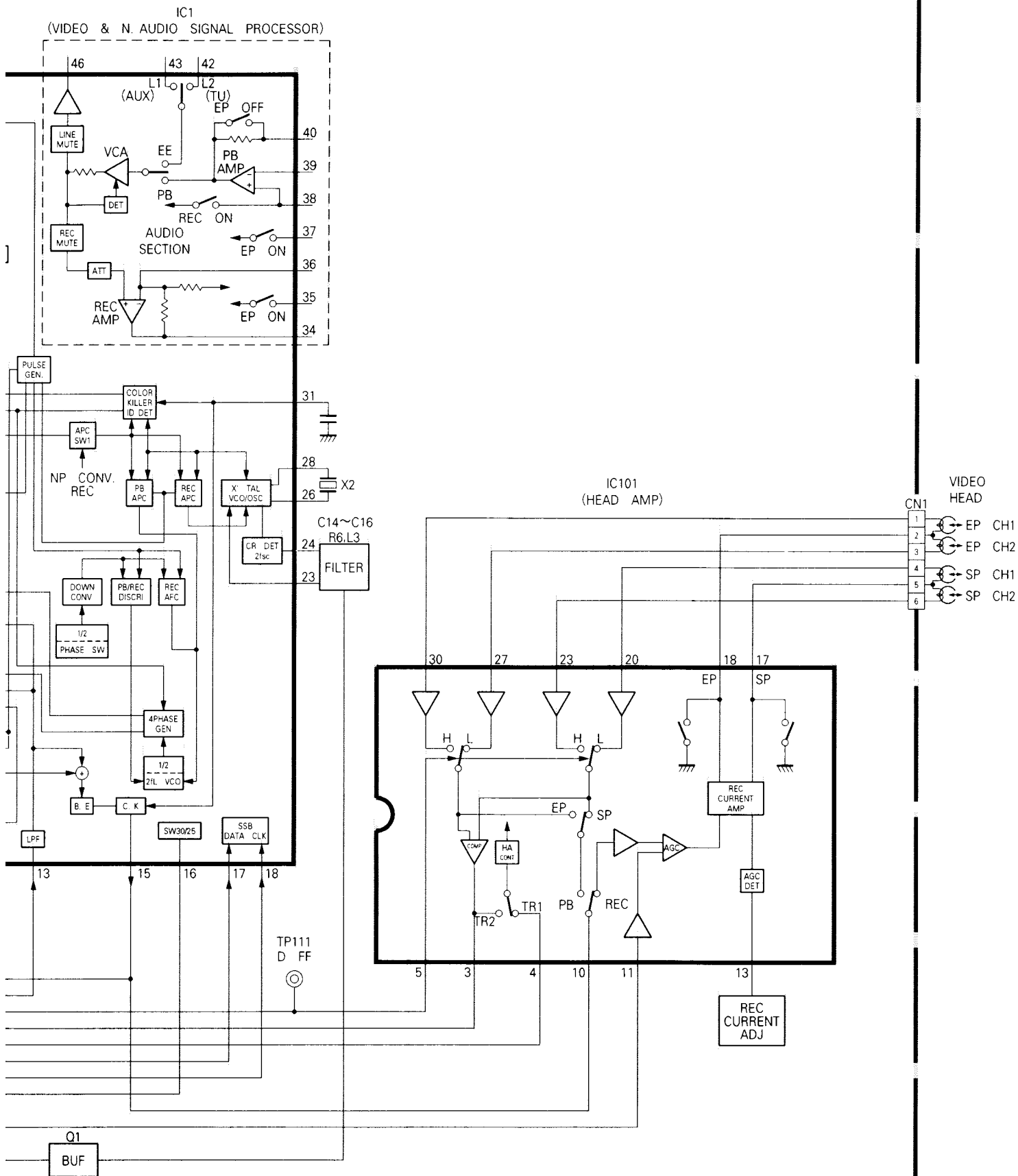


IC701  
(SYSTEM CONTROL MICRO PROCESSOR)



### 4.3 VIDEO BLOCK DIAGRAM





# 4.4 AUDIO BLOCK DIAGRAM

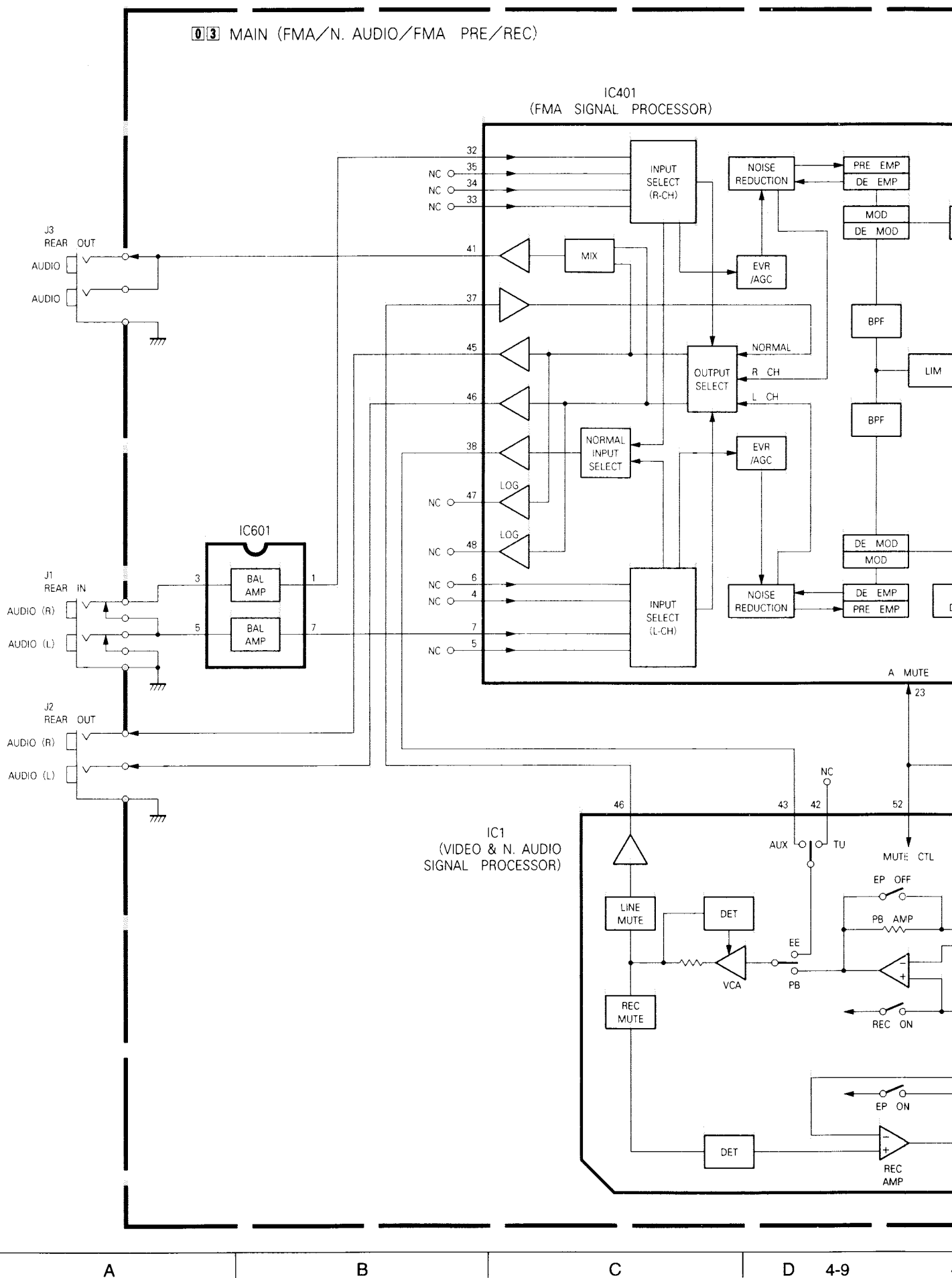
5

4

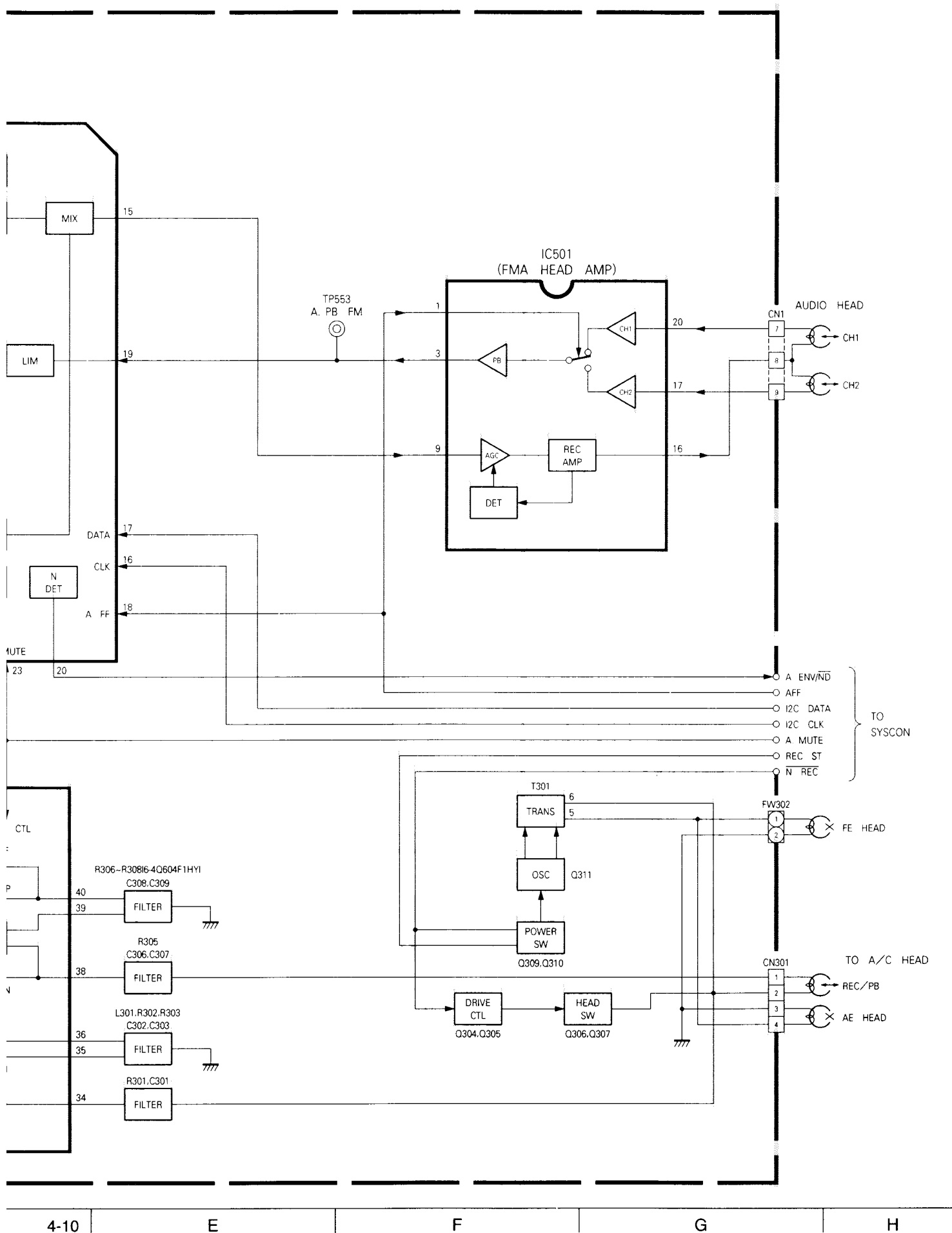
3

2

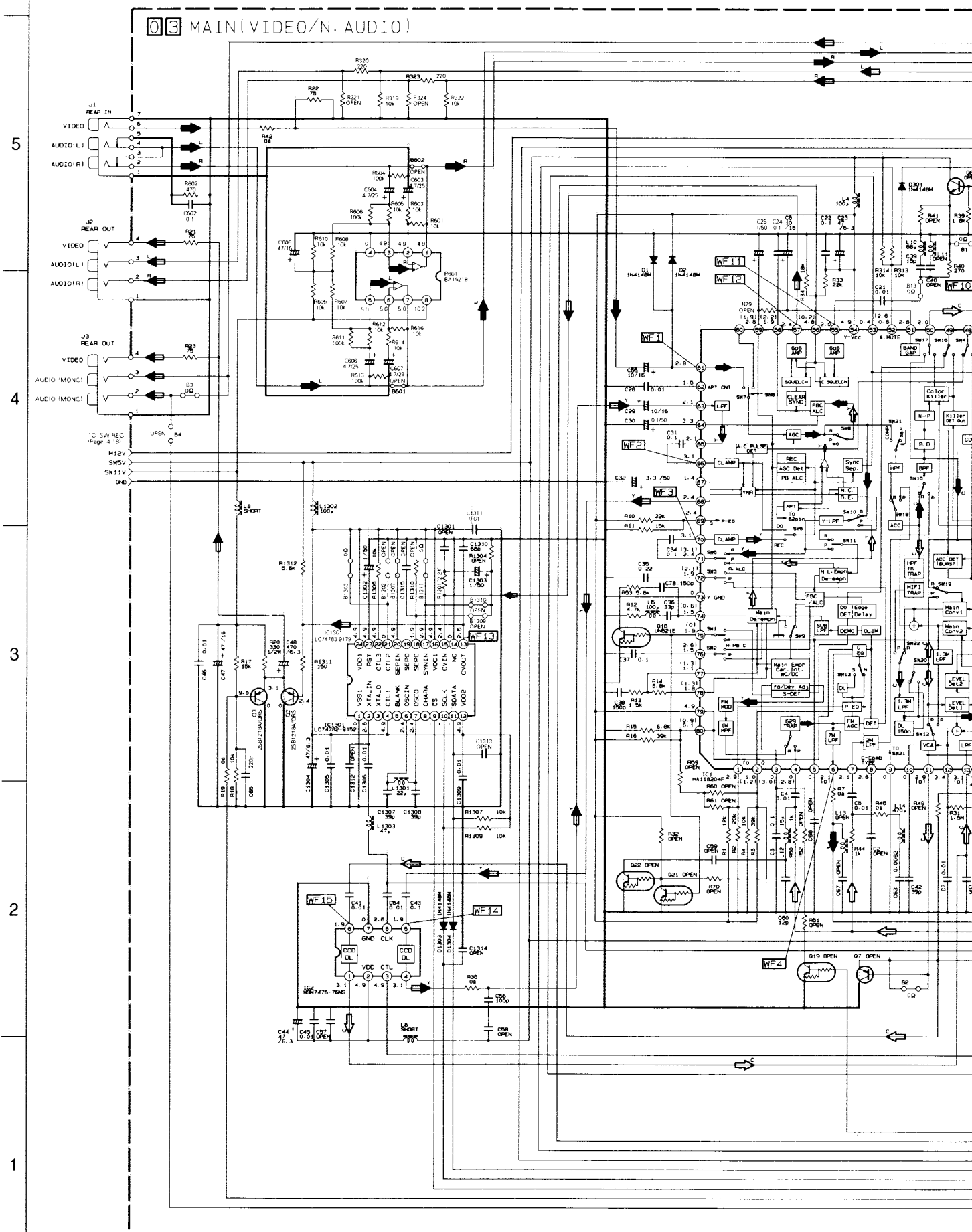
1







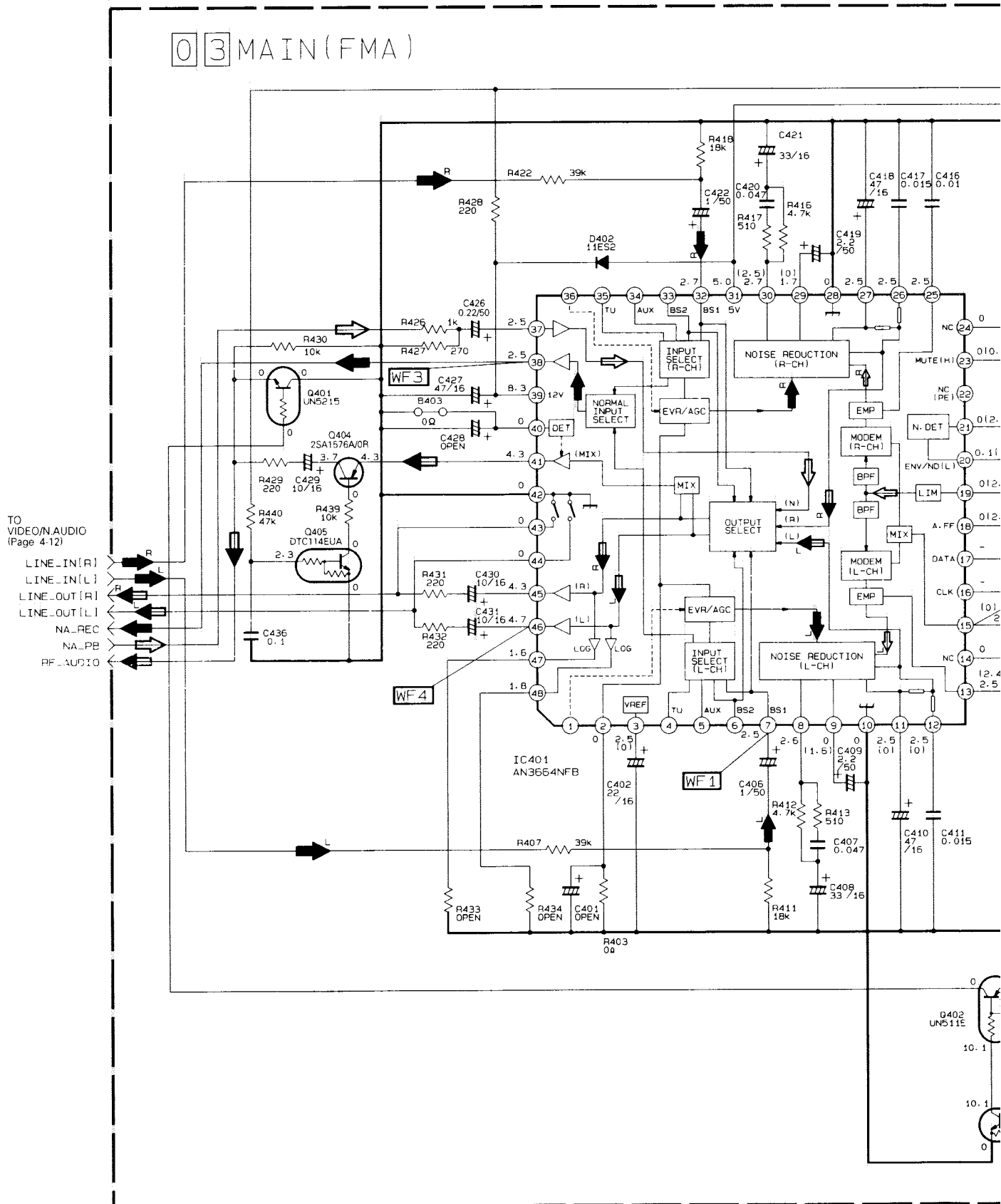
#### 4.5 VIDEO/N.AUDIO SCHEMATIC DIAGRAM

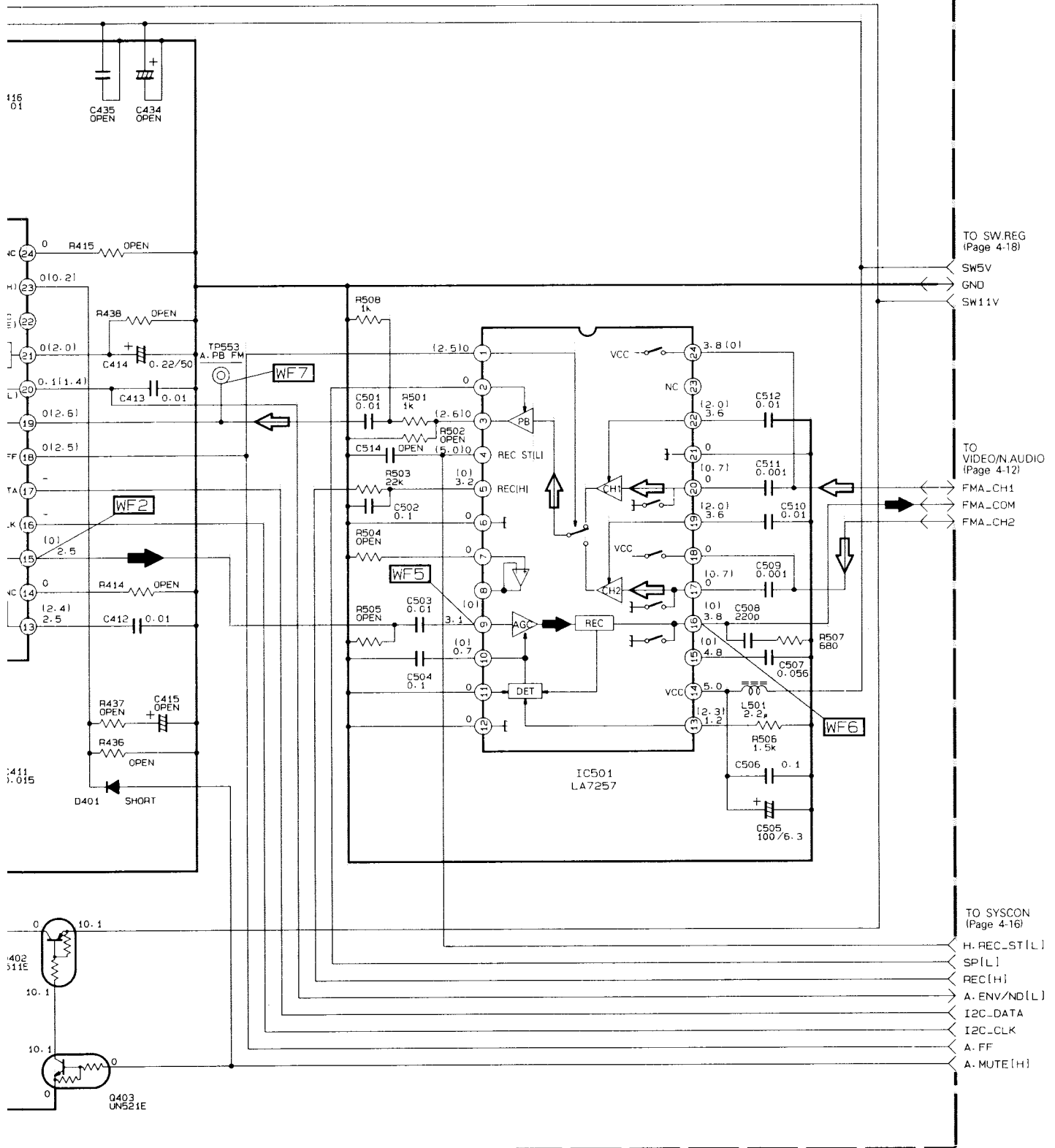


NOTE: For VIDEO, PRE/REC and AUDIO waveforms, please refer to page4-24

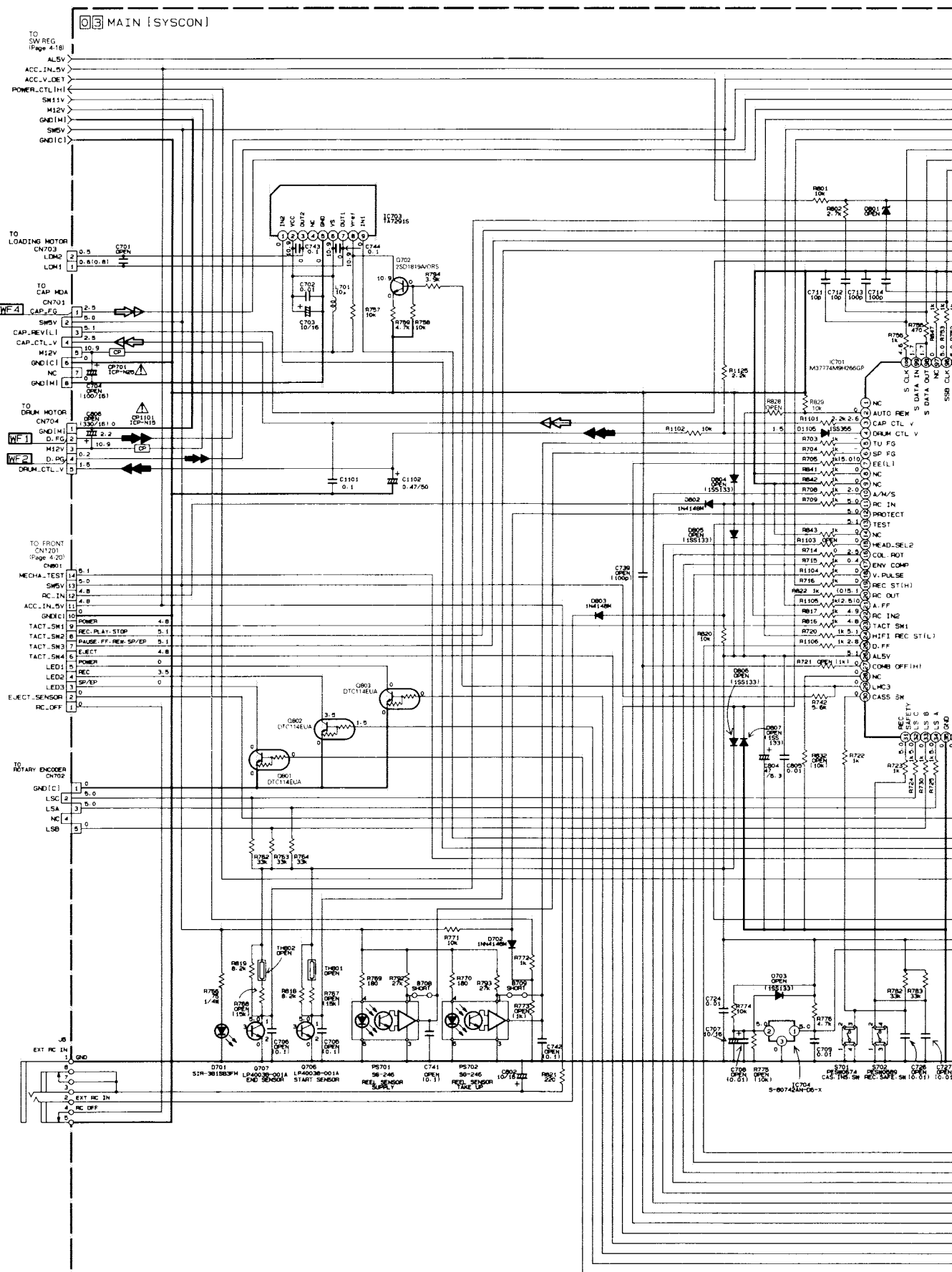


# 4.6 FMA SCHEMATIC DIAGRAM

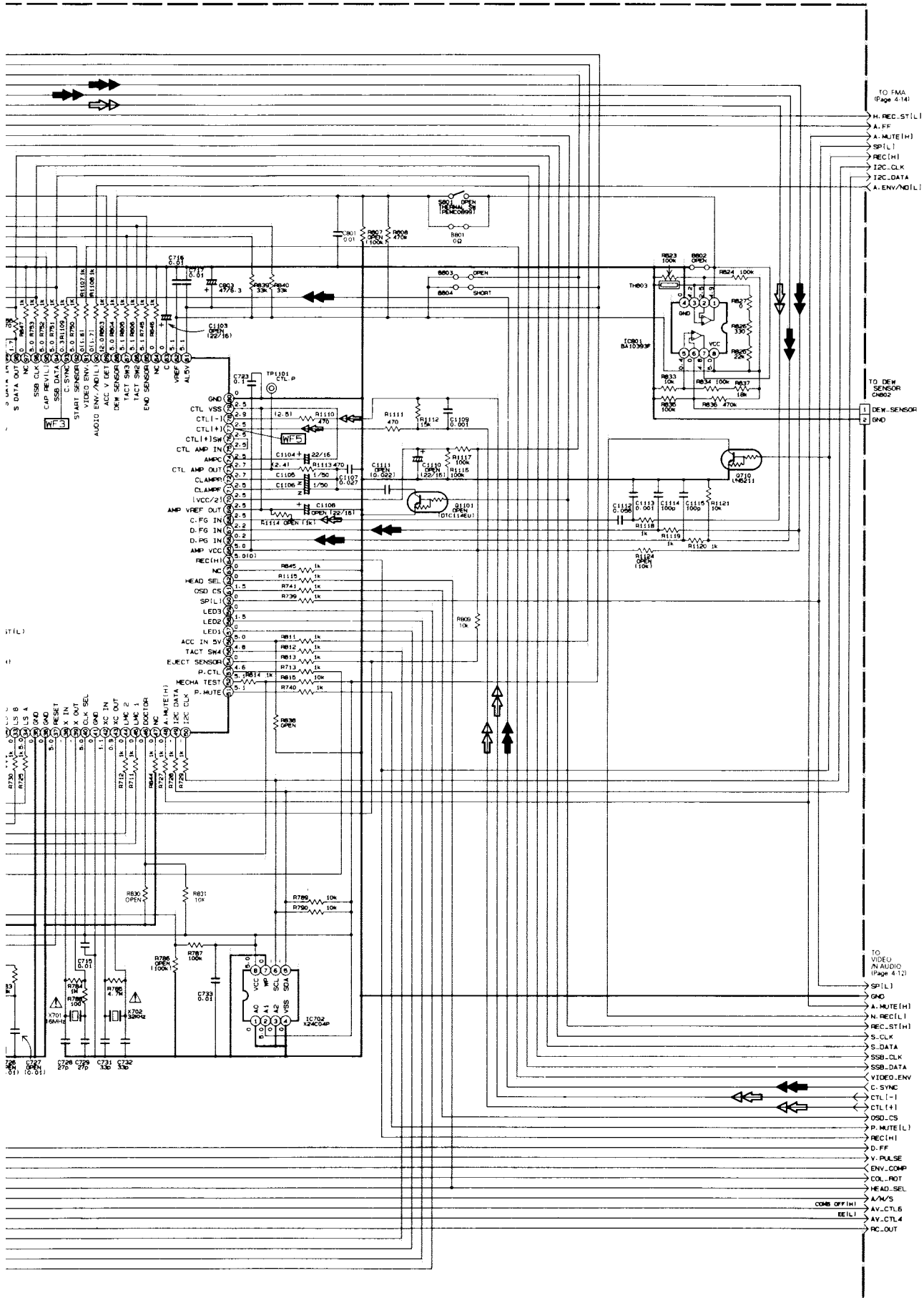




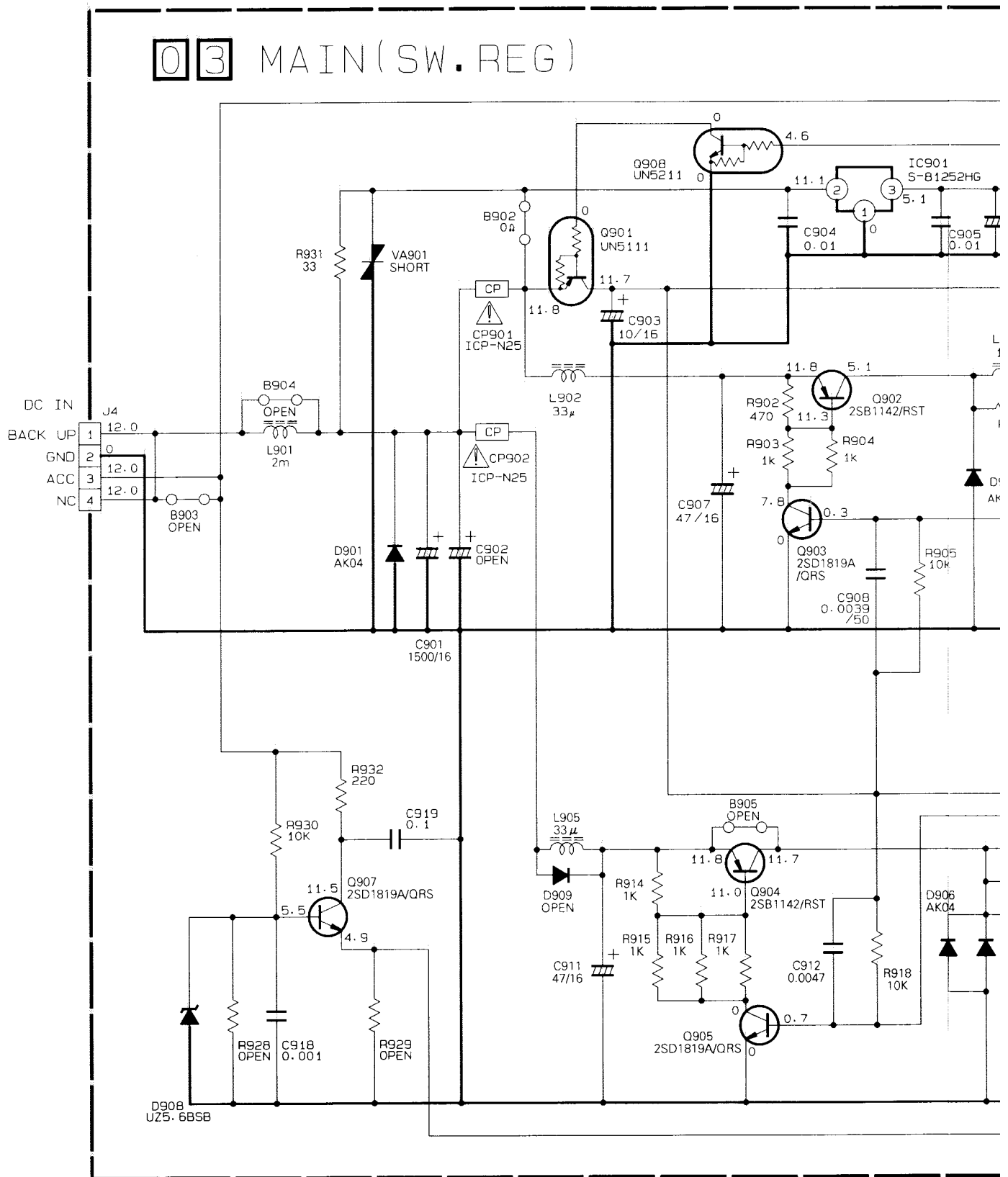
#### 4.7 SYSCON SCHEMATIC DIAGRAM



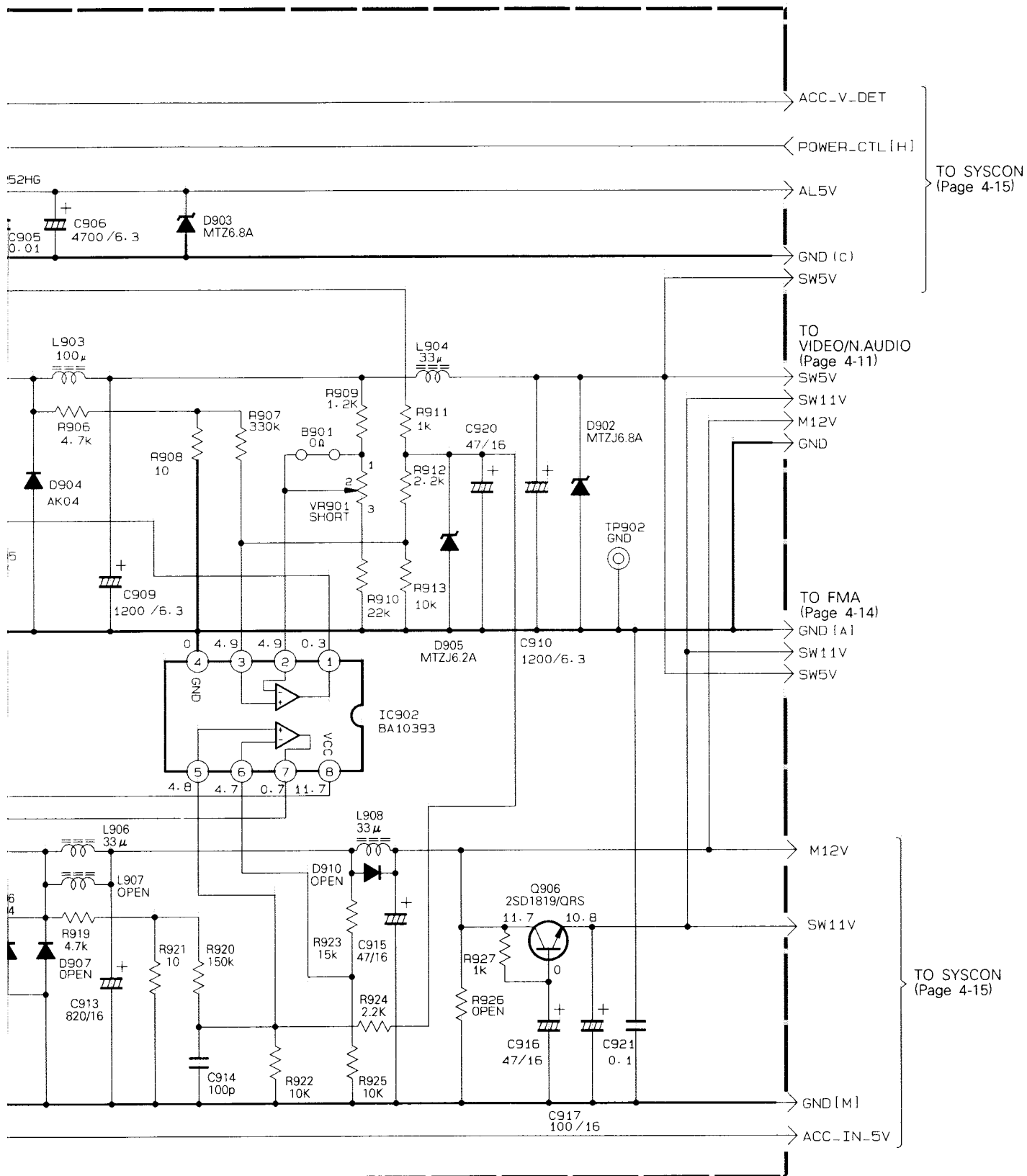
NOTE: For SYSCON waveforms, please refer to page 4-24.



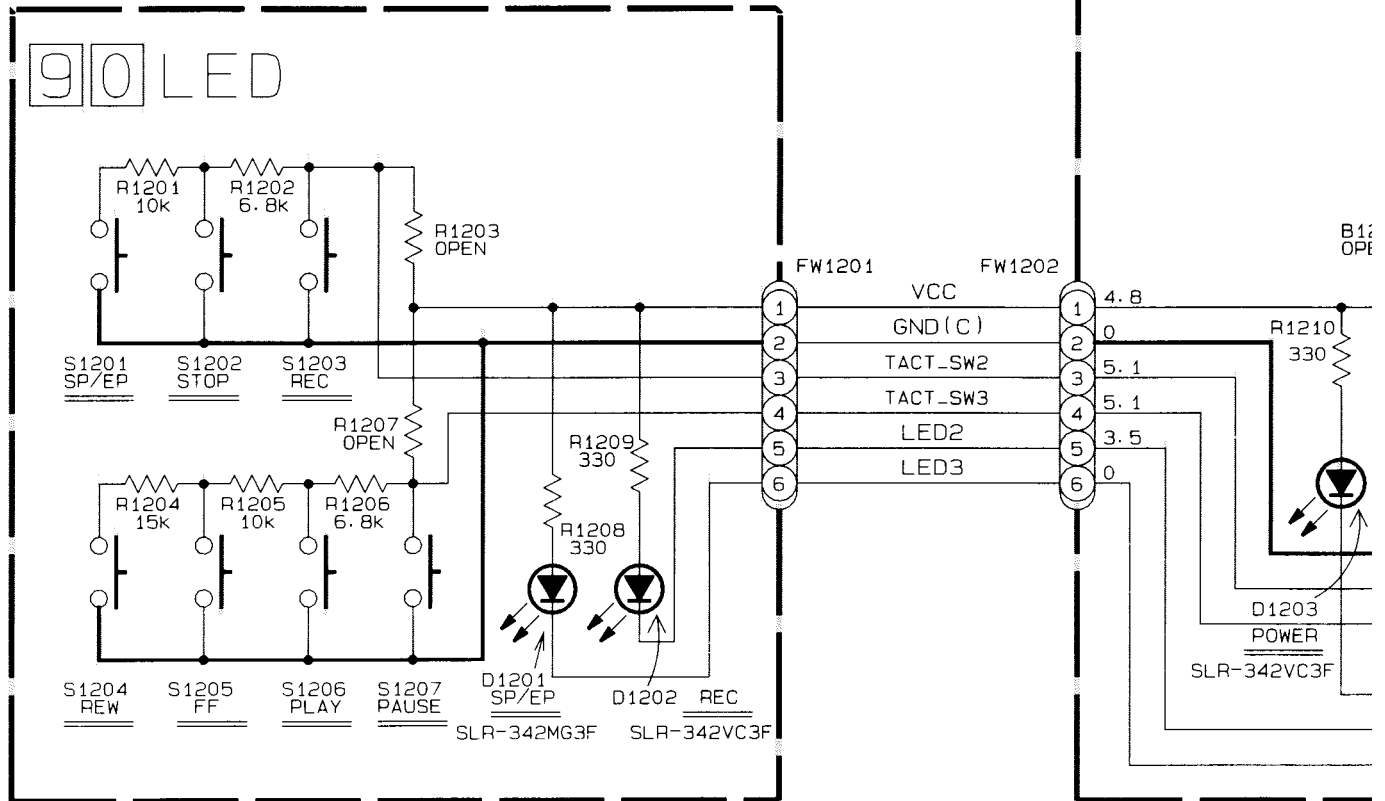
# 4.8 SWITCHING REGULATOR SCHEMATIC DIAGRAM



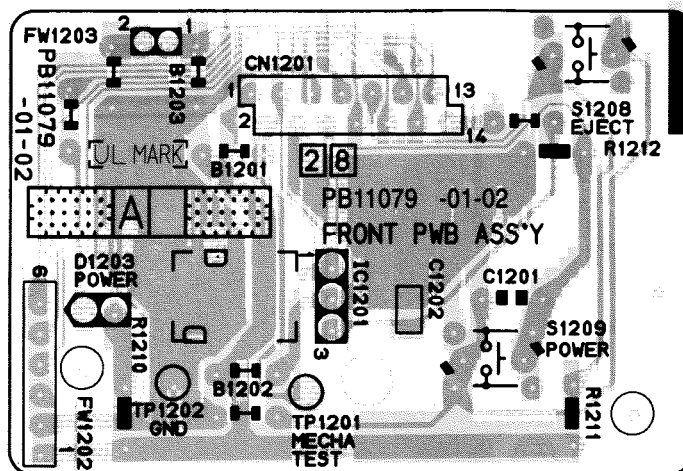




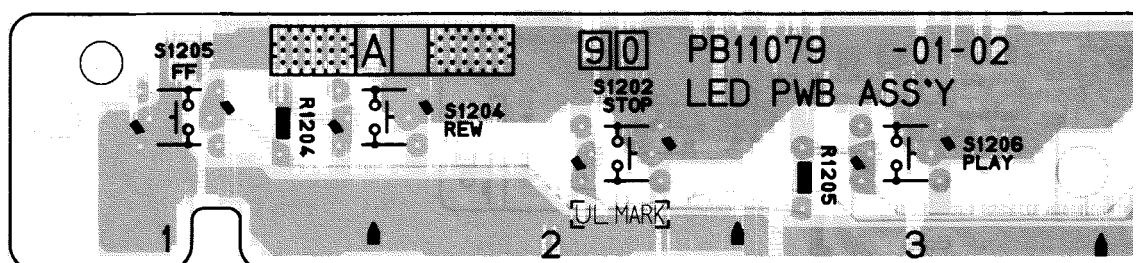
# 4.9 FRONT, LED, SW SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS



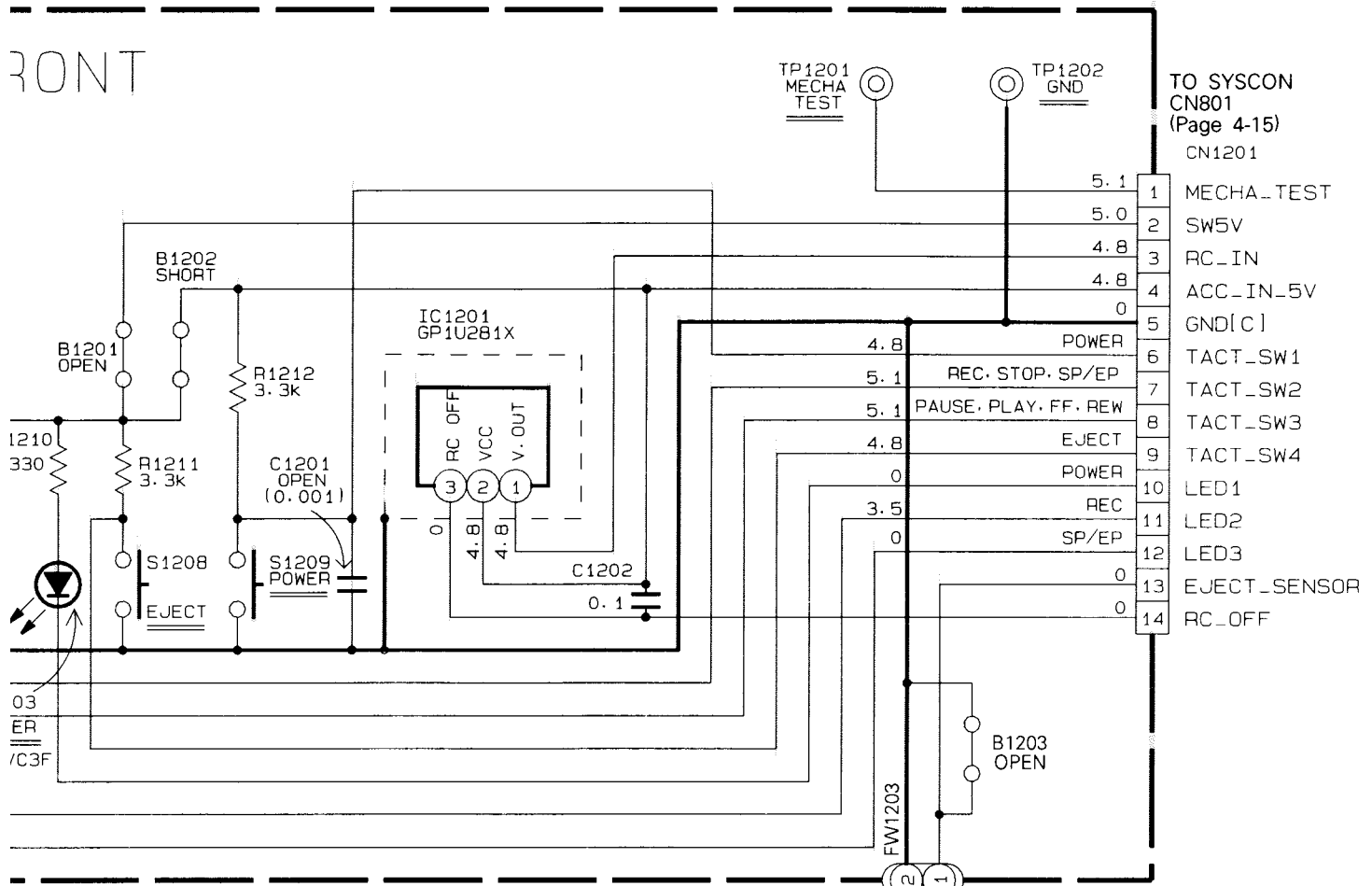
— FRONT —



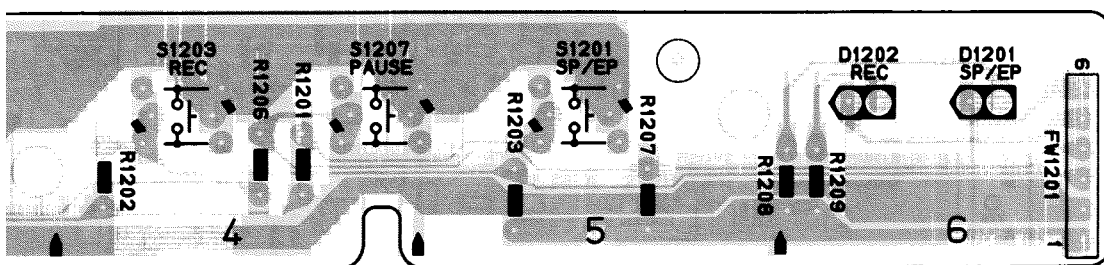
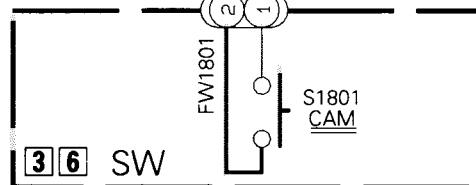
— LED —



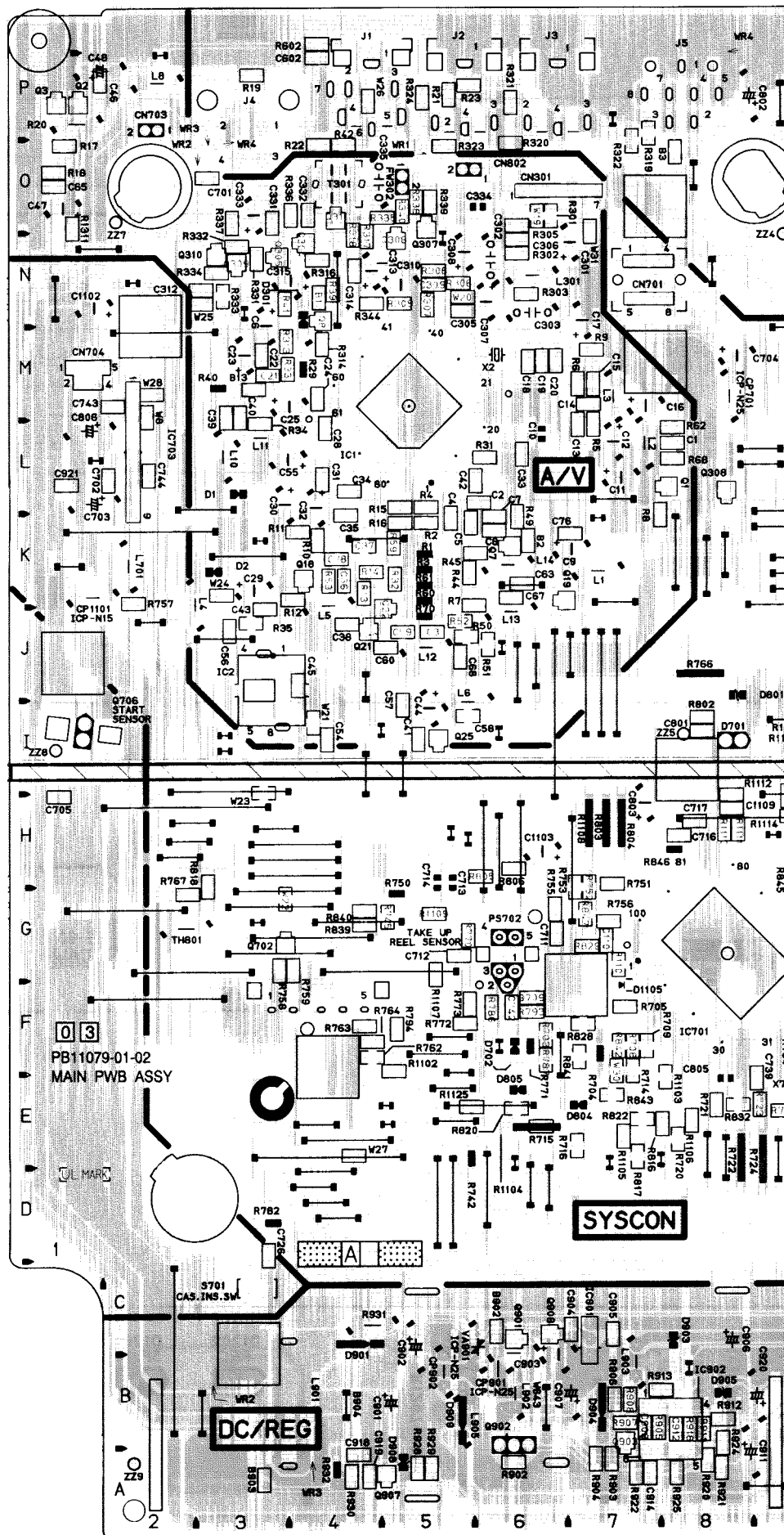
FRONT

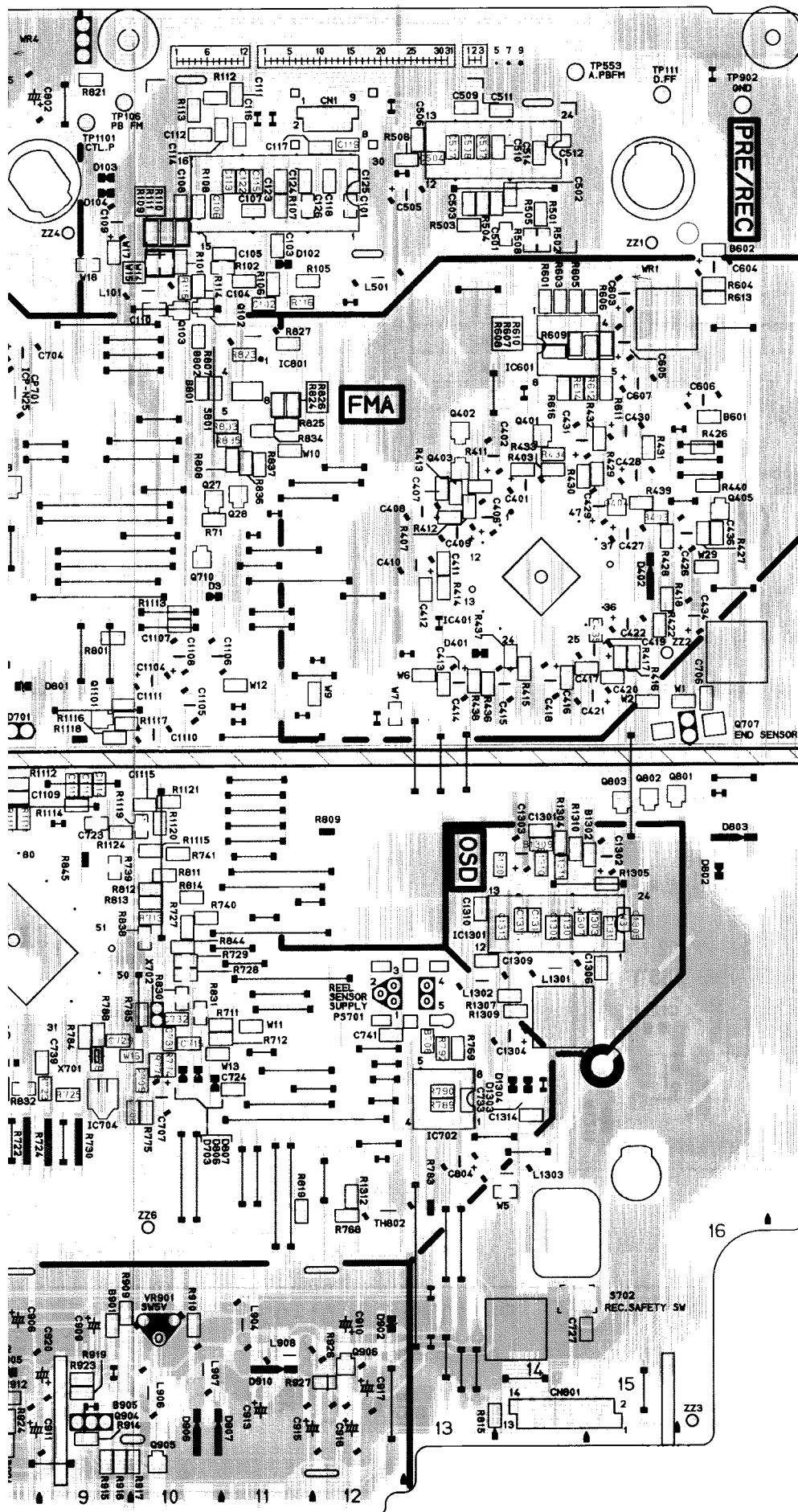


— SW —

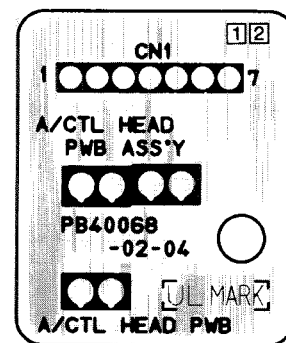


# 4.10 MAIN AND A/C HEAD CIRCUIT BOARDS





— A/C HEAD —



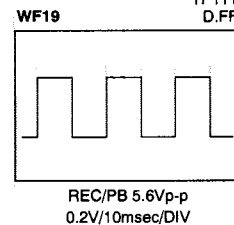
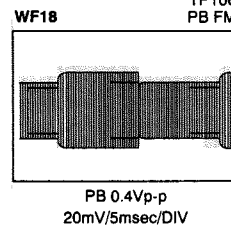
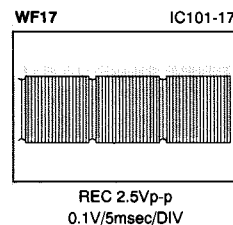
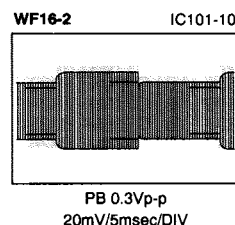
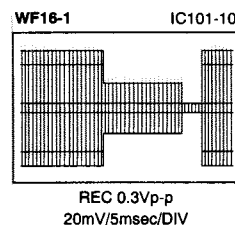
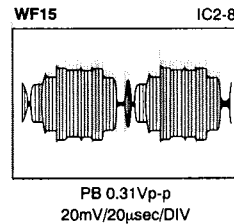
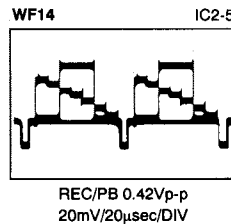
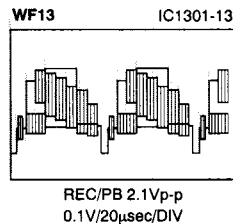
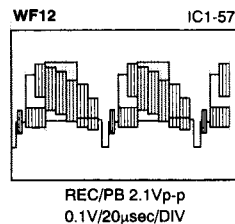
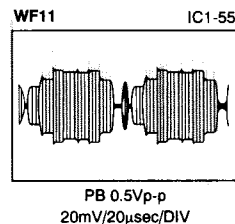
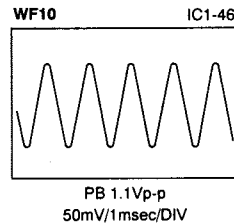
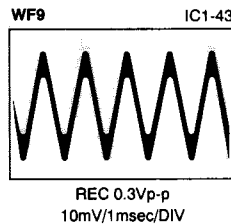
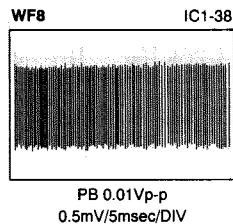
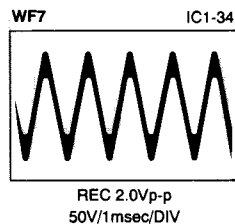
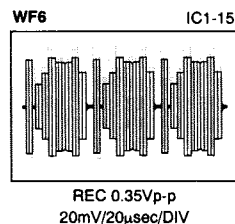
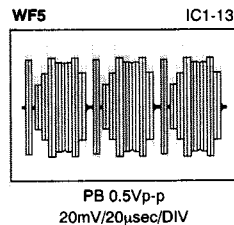
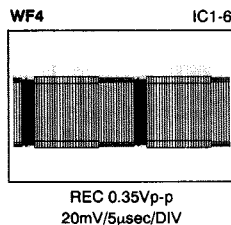
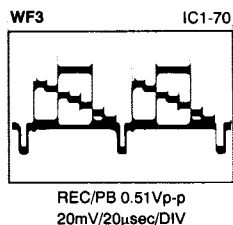
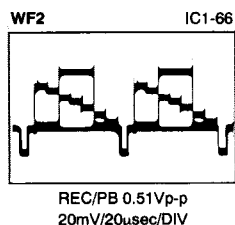
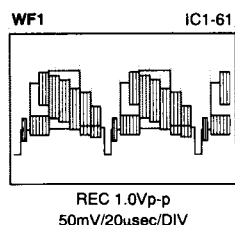


**COMPONENT PARTS LOCATION GUIDE <MAIN>**

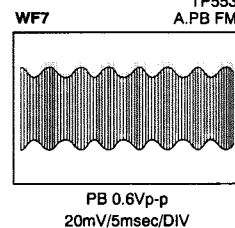
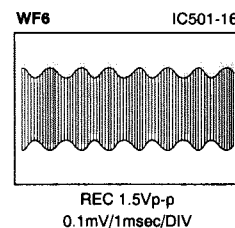
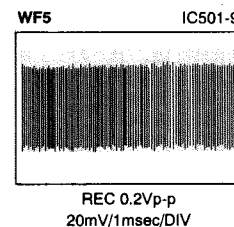
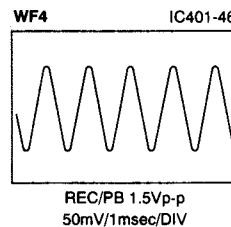
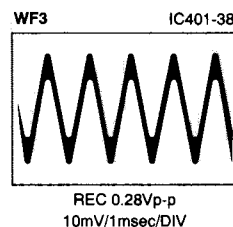
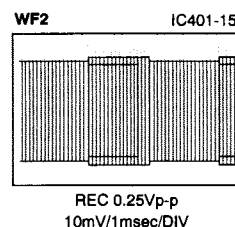
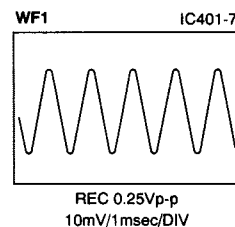
REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
<b>CAPACITOR</b>		C310	A D 5N	C901	A D 5B	D907	A D 5B	Q803	B C 15H	R332	B C 3N	R762	B C 4F	R923	B C 9B
C1	B C 8L	C312	B C 3N	C902	A D 5C	D908	A D 5B	Q901	B C 6C	R333	B C 3N	R763	B C 4F	R924	B C 8B
C2	B C 6L	C313	B C 4N	C903	A D 6B	D909	A D 5B	Q902	A D 6B	R334	B C 3N	R764	B C 4F	R925	B C 8A
C3	B C 5J	C314	B C 4N	C904	B C 7C	D910	A D 11B	Q903	B C 7B	R335	B C 50	R766	A D 8J	R926	A D 12B
C4	B C 5K	C315	B C 4N	C905	B C 7C	D1105	B C 7F	Q904	A D 9B	R336	B C 40	R767	B C 2G	R927	B C 12B
C5	B C 5K	C331	B C 30	C906	A D 8C	D1303	A D 14E	Q905	B C 10A	R337	B C 30	R768	B C 12D	R928	B C 5A
C6	A D 3N	C332	B C 40	C907	A D 7B	D1304	A D 14E	Q906	B C 12B	R338	B C 50	R769	B C 13F	R929	B C 5A
C7	B C 6K	C333	A D 30	C908	B C 7B	<b>IC</b>		Q907	B C 5A	R339	B C 50	R770	B C 5G	R930	B C 4A
C8	B C 6K	C334	A D 60	C909	A D 9C	IC1	B C 5M	Q908	B C 6C	R340	B C 50	R771	A D 6F	R931	A D 5C
C9	A D 6K	C335	A D 40	C910	A D 12B	IC2	B C 3J	Q1101	B C 9I	R344	B C 4N	R772	B C 5F	R932	A D 4A
C10	A D 6L	C401	A D 14L	C911	A D 8B	IC101	A D 120	<b>RESISTOR</b>		R403	B C 14L	R773	B C 5F	R1101	B C 7G
C11	A D 7L	C402	A D 14L	C912	B C 8B	IC401	B C 14K	R1	A D 5K	R407	B C 13K	R774	B C 10E	R1102	B C 5F
C12	A D 7L	C406	A D 13K	C913	A D 11B	IC501	A D 140	R2	B C 5K	R411	B C 13L	R775	B C 10E	R1103	B C 8E
C13	B C 7L	C407	B C 13L	C914	B C 7A	IC601	A D 14M	R3	A D 5K	R412	B C 13K	R776	B C 10E	R1104	A D 7E
C14	B C 7M	C408	A D 13K	C915	A D 12B	IC701	B C 8G	R4	B C 5L	R413	B C 13L	R782	A D 4D	R1105	B C 7E
C15	B C 7M	C409	A D 13K	C916	A D 12B	IC702	A D 13E	R5	B C 7L	R414	B C 13K	R783	A D 13D	R1106	B C 8E
C16	A D 7M	C410	A D 13K	C917	A D 12B	IC703	A D 2M	R6	B C 7M	R415	B C 14J	R784	B C 9F	R1107	B C 5G
C17	A D 7M	C411	B C 13K	C918	B C 4A	IC704	B C 9E	R7	B C 6K	R416	B C 15J	R785	B C 10F	R1108	A D 7I
C18	B C 6M	C412	B C 13K	C919	B C 4A	IC801	B C 11M	R8	B C 8K	R417	B C 15J	R786	B C 6F	R1109	B C 5G
C19	B C 6M	C413	B C 13J	C920	A D 9B	IC901	A D 7B	R9	B C 7M	R418	B C 15J	R787	B C 6F	R1110	B C 8H
C20	B C 6M	C414	A D 13J	C921	B C 1L	IC902	A D 7B	R10	B C 4K	R422	B C 15J	R788	B C 9F	R1111	B C 8H
C21	B C 3M	C415	A D 14J	C1101	B C 7G	IC1301	A D 15G	R11	B C 4K	R426	B C 16L	R789	B C 13E	R1112	B C 8H
C22	B C 3M	C416	B C 14J	C1102	A D 2N	<b>JACK</b>		R12	B C 4K	R427	B C 16K	R790	B C 13E	R1113	B C 10J
C23	A D 3M	C417	B C 15J	C1103	A D 6H	J1	A D 4Q	R13	B C 4K	R428	B C 15K	R792	B C 13F	R1114	B C 9H
C24	B C 4M	C418	A D 14J	C1104	A D 10J	J2	A D 5Q	R14	B C 4K	R429	B C 15L	R793	B C 6F	R1115	B C 10H
C25	A D 3M	C419	A D 15J	C1105	A D 10I	J3	A D 6Q	R15	B C 4K	R430	B C 14L	R794	B C 5F	R1116	B C 9I
C28	B C 4L	C420	B C 15J	C1106	A D 10J	J4	A D 3P	R16	B C 5L	R431	B C 15L	R801	B C 9J	R1117	B C 9I
C29	A D 3K	C421	A D 15J	C1107	B C 10J	J5	A D 8Q	R17	B C 10	R432	B C 15L	R802	B C 8I	R1118	A D 9I
C30	A D 3L	C422	A D 15J	C1108	A D 10J	<b>COIL</b>		R18	B C 10	R433	B C 14L	R803	A D 7H	R1119	B C 10H
C31	B C 4L	C426	A D 16K	C1109	B C 8H	L1	A D 7K	R19	B C 10	R434	B C 14L	R804	A D 7H	R1120	B C 10H
C32	A D 4L	C427	A D 15K	C1110	A D 10I	L2	A D 7L	R20	B C 1P	R436	B C 13J	R805	B C 6H	R1121	B C 10H
C33	B C 6L	C428	A D 15L	C1111	B C 9I	L3	A D 7M	R21	B C 5P	R437	B C 14J	R806	B C 6H	R1124	B C 9H
C34	B C 4L	C429	A D 15K	C1112	B C 9H	L4	A D 3J	R22	B C 40	R438	B C 13J	R807	B C 10M	R1125	B C 5E
C35	B C 4K	C430	A D 15L	C1113	B C 9H	L5	A D 4K	R23	B C 5P	R439	B C 15L	R808	B C 11L	R1301	B C 14H
C36	B C 4K	C431	A D 16J	C1114	B C 9H	L6	A D 6I	R29	A D 4M	R440	B C 16L	R809	A D 12H	R1304	B C 14H
C37	B C 4K	C434	B C 15J	C1115	B C 10H	L8	A D 2P	R31	B C 6L	R501	B C 14O	R811	B C 10G	R1305	B C 15G
C38	B C 4J	C435	B C 16K	C1301	B C 14H	L10	A D 3L	R32	B C 5K	R502	B C 14N	R812	B C 10G	R1307	B C 14F
C39	B C 3M	C436	B C 14N	C1302	A D 15H	L11	A D 3L	R33	B C 4M	R503	B C 13O	R813	B C 10G	R1309	B C 14F
C40	B C 3M	C501	B C 14O	C1303	A D 14H	L12	A D 5J	R34	B C 3L	R504	B C 13O	R814	B C 10G	R1310	B C 14H
C41	B C 5I	C502	B C 14O	C1304	A D 14F	L13	A D 6J	R35	B C 3J	R505	B C 14O	R815	B C 14B	R1311	B C 10
C42	B C 6L	C503	B C 13O	C1305	B C 15G	L14	A D 6K	R39	B C 4N	R506	B C 13O	R816	B C 8E	R1312	B C 12D
C43	B C 3J	C504	B C 13O	C1306	B C 15F	L14	A D 6K	R40	A D 3M	R507	B C 13O	R817	B C 7E	<b>SWITCH</b>	
C44	A D 5I	C505	A D 12O	C1307	B C 14G	L101	A D 10N	R41	B C 3N	R508	B C 14N	R818	B C 3H	S701	A D 3C
C45	B C 4J	C506	B C 13O	C1308	B C 14G	L1301	A D 6N	R42	B C 4O	R601	B C 14N	R819	B C 11D	S702	A D 14C
C46	B C 1P	C507	B C 13O	C1309	B C 13G	L501	A D 12N	R44	B C 5K	R602	B C 4Q	R820	B C 9P	S801	A D 10L
C47	A D 1O	C508	B C 13O	C1310	B C 13G	L701	A D 2K	R45	B C 6K	R603	B C 14N	R821	B C 7E	<b>TEST POINT</b>	
C48	A D 1P	C509	B C 13P	C1311	B C 14G	L901	A D 4B	R49	B C 6K	R604	B C 16N	R822	B C 11M	TP106	A D 9P
C54	B C 4I	C510	B C 14O	C1312	B C 15G	L902	A D 6B	R50	B C 5J	R605	B C 14N	R823	B C 11M	TP111	A D 15P
C55	A D 4L	C511	B C 14P	C1313	B C 14G	L903	A D 7B	R51	B C 6J	R606	B C 15N	R824	B C 11M	TP553	A D 14P
C56	B C 3J	C512	B C 14O	C1314	B C 14E	L904	A D 11B	R52	B C 5J	R607	B C 15M	R825	B C 11M	TP902	A D 16P
C57	B C 5J	C514	B C 14O	C1315	B C 14G	L905	A D 5B	R53	B C 4K	R608	B C 14M	R826	B C 11M	TP1101	A D 9P
C58	B C 5I	C602	A D 4P	<b>CONNECTOR</b>		L906	A D 10B	R59	B C 5K	R609	B C 15M	R827	B C 7F	<b>OTHERS</b>	
C59	B C 5J	C603	A D 15N	CN1	A D 12P	L907	A D 10B	R60	A D 5K	R610	B C 15M	R828	B C 7G	FW302	A D 5O
C60	B C 5J	C604	A D 16N	CN301	A D 6O	L908	A D 11B	R61	A D 5K	R611	B C 15M	R829	B C 10F	PS701	A D 13F
C63	B C 6K	C605	A D 15M	CN701	A D 7N	L1301	A D 14F	R62	B C 8L	R612	B C 15M	R830	B C 10F	PS702	A D 6G
C65	B C 1O	C606	A D 16M	CN702	A D 4F	L1302	A D 13F	R68	B C 8L	R613	B C 16N	R831	B C 8E	T301	A D 4O
C67	B C 6K	C607	A D 15M	CN703	A D 2P	L1303	A D 14D	R70	A D 5J	R614	B C 14M	R832	B C 11L	TH801	A D 3G
C68	B C 5J	C701	B C 30	CN704	A D 1M	<b>TRANSISTOR</b>		R71	B C 10K	R616	B C 14M	R833	B C 11L	TH802	A D 13D
C76	B C 7K	C702	B C 2L	CN801	A D 15B	Q1	B C 8L	R101	B C 10N	R703	B C 6F	R834	B C 11L	TH803	A D 11M
C78	B C 4K	C703	A D 2L	CN802	A D 6O	Q2	B C 1P	R102	B C 11N	R704	A D 7F	R835	B C 11L	VA901	A D 6B
C101	B C 12O	C704	A D 8M	<b>CIRCUIT PROTECTOR</b>		Q3	B C 1P	R105	B C 11N	R705	B C 7F	R836	B C 10G	VR901	A D 10C
C102	B C 11N	C705	B C 1H	CP701	A D 8M	Q7	B C 6K	R106	B C 11N	R708	B C 7F	R837	B C 11L	WR1	A D 15N
C103	B C 11N	C706	B C 16I	CP901	A D 6C	Q8	B C 4N	R107	B C 11O	R709	B C 7F	R838	B C 11L	WR2	A D 3B
C104	B C 11N	C707	A D 10E	CP902	A D 5B	Q18	B C 4K	R108	B C 100	R711	B C 11F	R839	B C 4G	WR3	A D 4A
C105	B C 11N	C708	B C 10E	CP1101	A D 2K	Q19	B C 6K	R109	B C 10N	R712	B C 11F	R840	B C 7F	WR4	A D 3O
C106	B C 100	C709	B C 10E	<b>DIODE</b>		Q21	B C 4J	R110	B C 10N	R713	B C 10G	R841	B C 7F	X2	A D 6M
C107	B C 11O	C711	B C 6G	D1	A D 3L	Q22	B C 5J	R111	B C 10N	R714	B C 7F	R842	B C 7E	X701	A D 9F
C108	B C 100	C712	B C 5G	D2	A D 3K	Q25	B C 5I	R112	B C 10P	R715	B C 6E	R843	B C 10G	X702	A D 10F
C109	A D 9O	C713	A D 5G	D3	A D 10K	Q27	B C 10L	R113	B C 10P	R716	B C 7E	R844	B C 8E		
C110	B C 10N	C714	A D 5G	D102	A D 11N	Q28	B C 11L	R114	B C 10N	R720	B C 8E	R845	A D 9G		
C111	B C 11P	C715	B C 10F	D103	A D 9O	Q102	B C 10N	R115	B C 10N	R721	A D 8D	R846	A D 8H		
C112	B C 10P	C716	B C 8H	D104	A D 9O	Q103	B C 10N	R116	B C 11N	R722	B C 9E	R847	B C 7G		
C113	B C 11O	C717	B C 8H	D301	A D 4M	Q304	B C 4N	R301	B C 6O	R723	A D 9D	R902	B C 6A		
C114	B C 11P	C723	B C 9H	D401	A D 13J	Q305	B C 3N	R302	B C 6N	R724	B C 9E	R903	B C 7A		
C115	B C 11O	C724	B C 11E	D402	A D 15J	Q306	B C 5N	R303	B C 6N	R725	B C 10G	R904	B C 7A		
C116	B C 11P	C726	B C 3D	D701	A D 8I	Q307	B C 5O	R305	B C 6O	R727	B C 10G	R905	B C 7B		
C117	B C 12O	C727	B C 15C	D702	A D 6F	Q308	B C 8L	R306	B C 5N	R728	B C 10G	R906	B C 7B		
C118	B C 12O	C728	B C 9E	D703	A D 10E	Q309	B C 3N	R307	B C 5N	R729	A D 9E	R907	B C 7B		
C119	B C 12O	C729	B C 9F	D801	A D 9J	Q310	B C 3N	R308	B C 5N	R730	B C 9H	R908	B C 7B		
C122	B C 11O	C732	B C 10F	D802	A D 16H	Q311	B C 4O	R309	B C 5N	R739	B C 10G	R909	B C 9C		
C123	B C 11O	C733	B C 13E	D803	A D 16H	Q401	B C 14L	R313	B C 3M	R740	B C 10H	R910	B C 10C		
C124	B C 11O	C739	B C 9E	D804	A D 7E	Q402	B C 13L	R314	B C 4M	R741	B C 5D	R911	B C 8B		
C125	B C 12O	C741	B C 12F	D805	A D 6E	Q403	B C 13L	R316	B C 4N	R742	A D 5D	R912	B C 8B		
C126	B C 11O	C742	B C 6F	D806	A D 10E	Q404	B C 15K	R317	B C 4N	R745	A D 5G	R913	B C 8B		
C301	A D 7N	C743	B C												

# WAVEFORMS

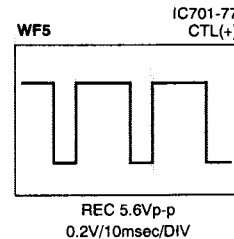
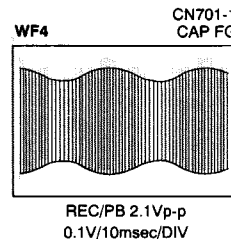
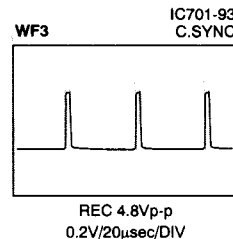
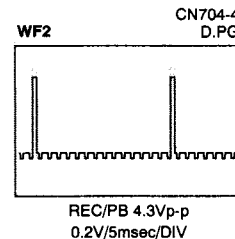
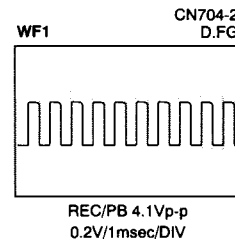
## — VIDEO/N.AUDIO —



## — FMA —



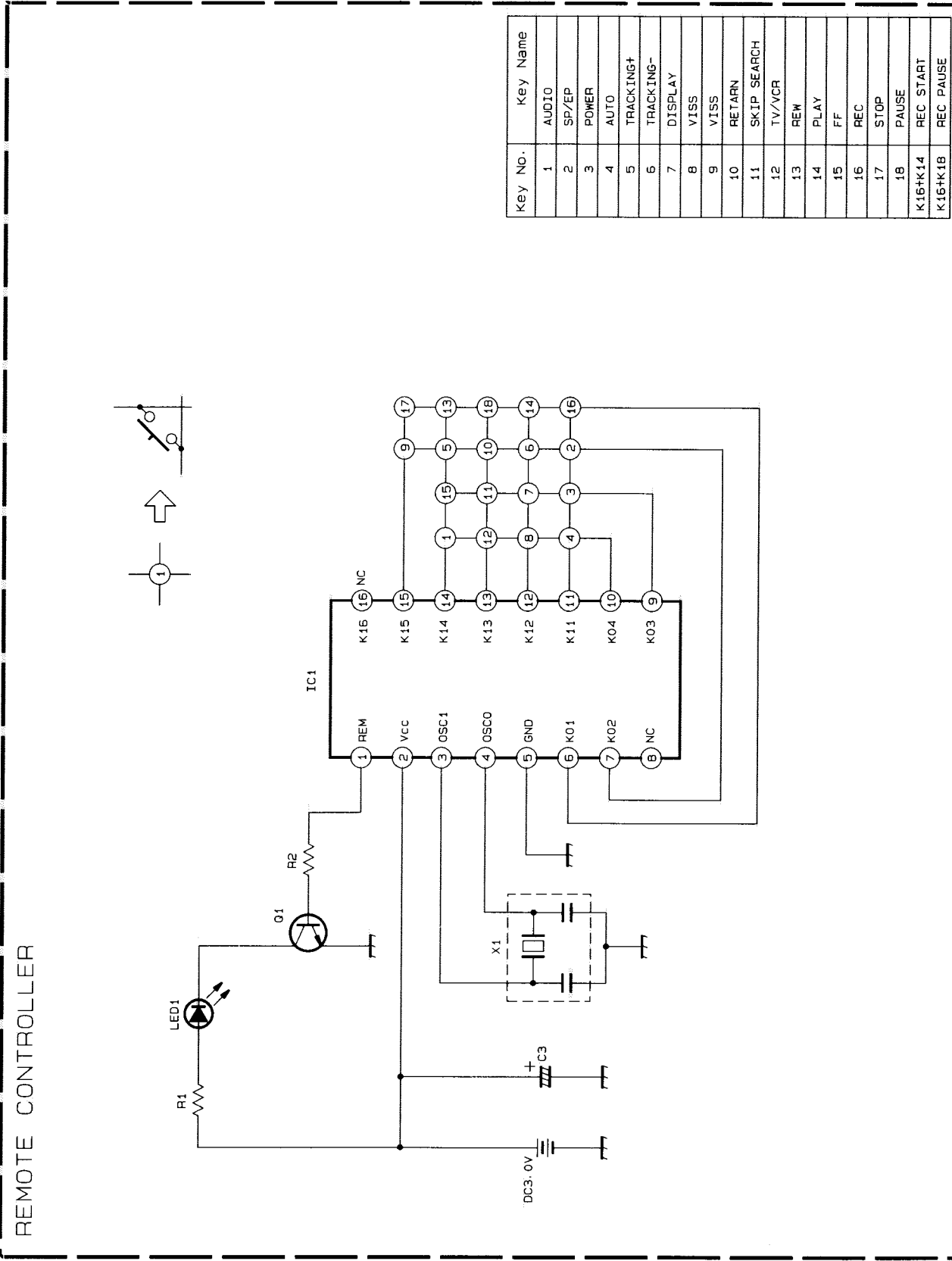
## — SYSCON —





4.11 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTE:  
1. All parts shown in this schematic are critical for safety.  
2. This schematic is only for reference.  
Avoid replacing individual parts.  
replace the entire unit only.



Key No.	Key Name
1	AUDIO
2	SP/EP
3	POWER
4	AUTO
5	TRACKING+
6	TRACKING-
7	DISPLAY
8	VISS
9	VISS
10	RETRN
11	SKIP SEARCH
12	TV/VCR
13	REW
14	PLAY
15	FF
16	REC
17	STOP
18	PAUSE
K16+K14	REC START
K16+K18	REC PAUSE



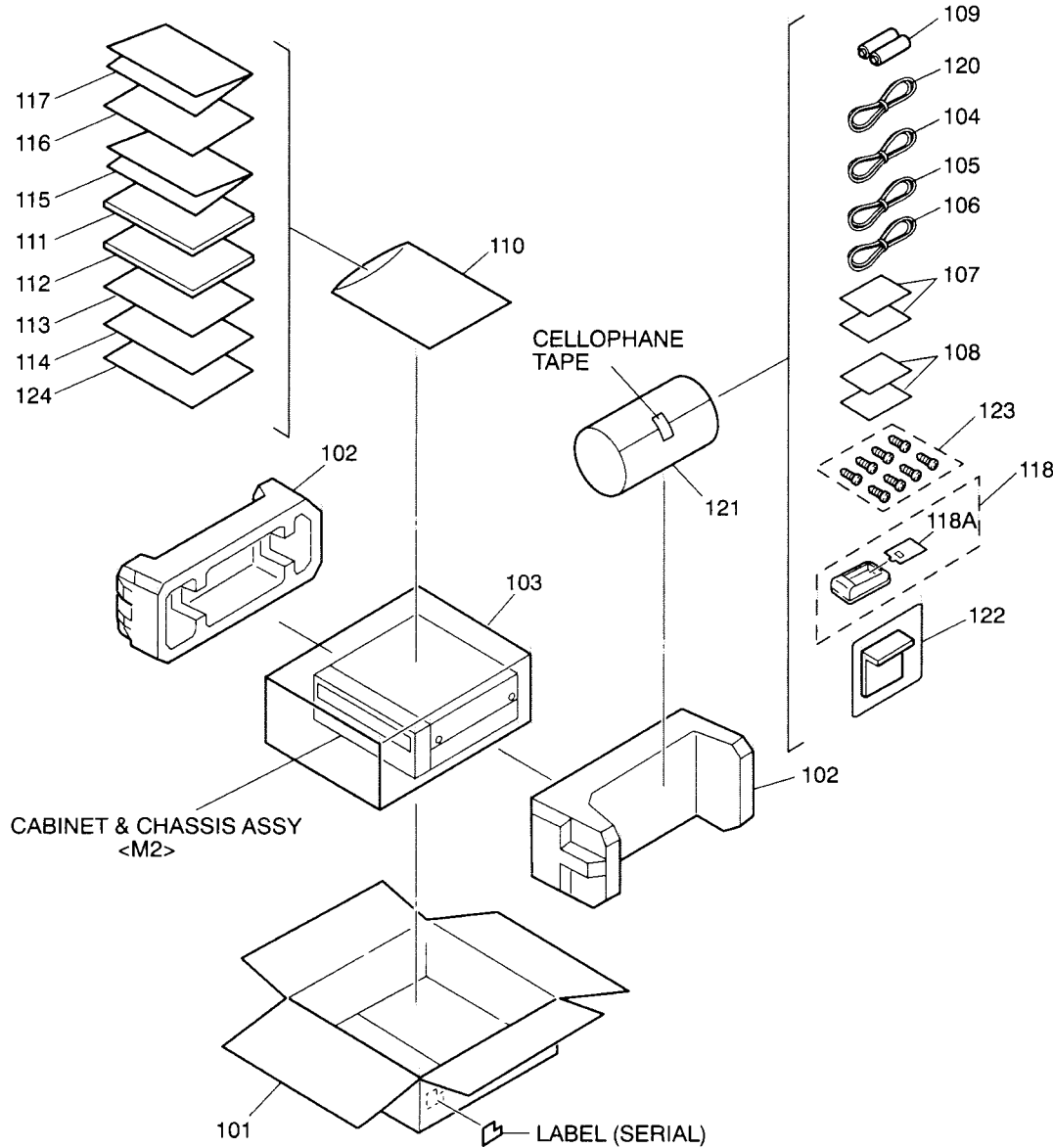
SECTION 5  
PARTS LIST





SAFETY PRECAUTION

Parts identified by the  symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.

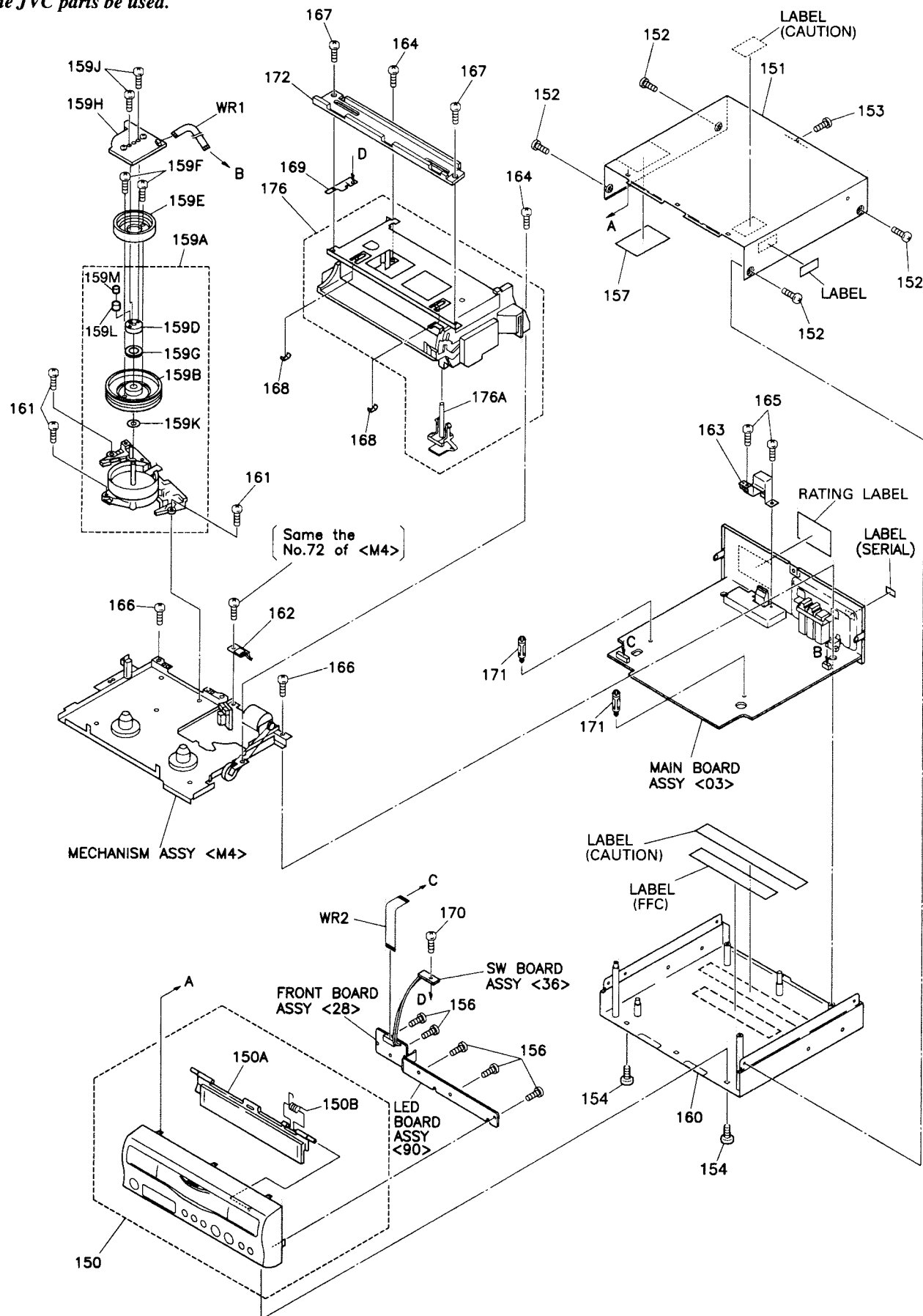


# 	REF No.	PART No.	PART NAME, DESCRIPTION	# 	REF No.	PART No.	PART NAME, DESCRIPTION
*****							
PACKING AND ACCESSORY ASSEMBLY <M1>							
	101	LP30421-001A	PACKING CASE		112	VNN3802-T631	INST BOOK(CONNECTION MANUAL)
	102	LP30422-001A	CUSHION ASSY		113	BT-20071B	SER.NET CARD
	103	PQM30021-102	POLY BAG		114	VNA1001-030	USERS CARD
	104	QAM0101-001	CAR CABLE		115	BT-20137	TOLL FREE CARD
	105	QAM0113-001	RM CABLE		116	BT-51009-3	WARRANTY CARD(USA ONLY)
	106	LV40177-001A	IR RECEIVER			BT-52001-4	WARRANTY CARD(CANADA ONLY)
	107	LP40176-001A	SHEET(A),X2		117	LPT0040-002A	INST BOOK(CAUTION)
	108	LP40177-001A	SHEET(B),X2		118	LP30180-003B	REMOTE CONTROLLER
	109	R6PRPA-2ST	BATTERY,X2		118A	LP40068-001A	BATTERY CASE
	110	QPC02503530P	POLY BAG		120	QAM0097-001	CABLE ASSY(AUDIO/VIDEO)
	111	VNN3802-631	INST BOOK		121	QPC02202230P	POLY BAG
					122	LP30137-001B	BRACKET,X2
					123	LP40183-001A	SCREW ASSY
					124	LPT0040-003A	CAUTION

## 5.2 CABINET AND CHASSIS ASSEMBLY <M2>

### BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



# ▲ REF No. PART No. PART NAME, DESCRIPTION

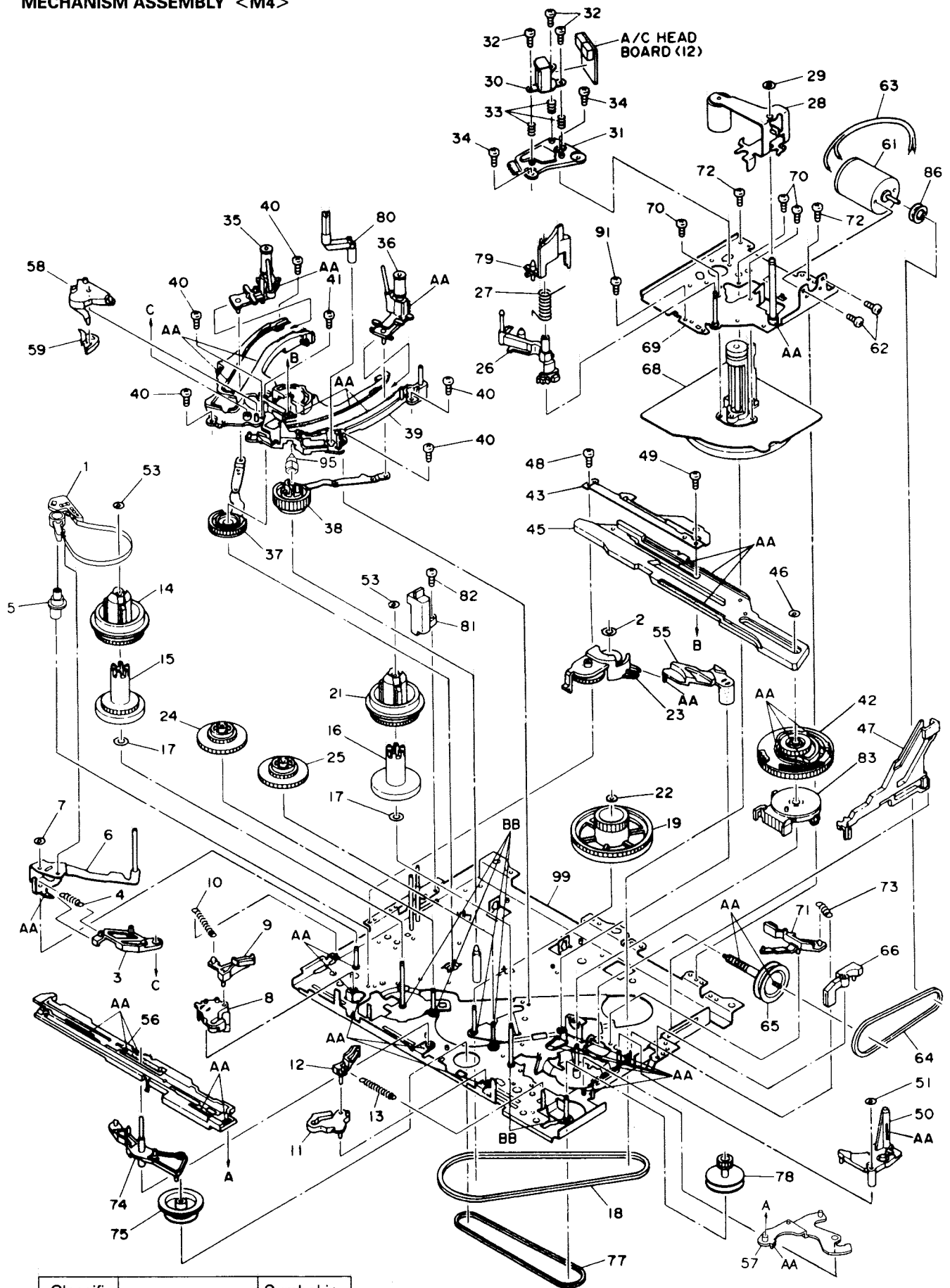
\*\*\*\*\*

**CABINET AND CHASSIS ASSEMBLY <M2>**

150	LP20101-001H	FRONT PANEL ASSY
150A	LP20156-001C	CASSETTE DOOR
150B	PQ46448	TORSION SPRING
▲ 151	LP10040-001C	TOP COVER
152	SDST3008M	SCREW,X4 TOP COVER(SIDE)
153	SDST3008M	SCREW,TOP COVER(REAR)
154	LP40173-001A	SPECIAL SCREW,X2 TOP/BOTTOM
156	SDSF2608Z	SCREW,X5 FRONT/LED BOARD
157	LP30002-017A	SPACER,TOP COVER
159A	LP20053-001A	DRUM SUB ASSEMBLY
159B	LP20030-001A	UPPER DRUM ASSEMBLY
159D	LP40028-001A	COLLAR ASSEMBLY
159E	QAR0002-001	ROTOR ASSEMBLY
159F	QYSPSP3006Z	SCREW,X2
159G	PDM4439	CAP
159H	QAR0003-005	STATOR ASSEMBLY
159J	QYSPSP2606Z	SCREW,X2
159K	PDM4444-19-2	WASHER
159L	LP40323-001A	CONTACT
159M	LP30004-005A	COMPRES.SPRING
▲ 160	LP10038-001D	BOTTOM CHASSIS ASSY
161	SPST2608Z	SCREW,X3 DRUM
162	PESC1422	DEW SENSOR
163	PQ35385-1-2	SHIELD COVER,PRE
164	SPST2606Z	SCREW,X2 CASS.HOUSING
165	SDST2606Z	SCREW,X2 PRE
166	SDST4010Z	SCREW,X2 MECHANISM
167	SDST3008Z	SCREW,X2 CASSETTE HOUSING
168	LP40154-001A	SPRING COVER,X2 CASS.HOUSING
169	LP40079-001A	SWITCH BRACKET
170	SDSP2003Z	SCREW,SWITCH BRACKET
171	PEME0947-01-01	SPACER,X2
172	LP30470-001A	STAY,CASSETTE HOUSING
176	PUS29724E	CASSETTE HOUSING ASSY
176A	PQ46359-1-2	CASSETTE SWITCH PIN
WR1	PW30803-0524	FFC WIRE,DRUM
WR2	PW30802-1412	FFC WIRE,FRONT BOARD

# ▲ REF No. PART No. PART NAME, DESCRIPTION

### 5.3 MECHANISM ASSEMBLY <M4>



Classifi- cation	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

**NOTE:** The section marked in AA and BB indicate lubrication and greasing areas.

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
*****				
<b>MECHANISM ASSEMBLY &lt;M4&gt;</b>				
1			LP40006-001C	TENSION BAND ASSEMBLY
2			PQM30017-34	SLIT WASHER
3			PQ35012-1-5	TENSION ARM LEVER
4			PQM30001-385109	TENSION SPRING
5			LP30103-001B	ADJUST PIN
6			PQ46303A-8	TENSION ARM ASSEMBLY
7			PQM30017-47	SLIT WASHER
8			PQ46305B-3	MAIN BRAKE ASSEMBLY (SUPPLY)
9			PQ46306A-6	SUB BRAKE ASSEMBLY (SUPPLY)
10			PQM30001-393	TENSION SPRING
11			PQ46308A-5	MAIN BRAKE ASSEMBLY (TAKE UP)
12			PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
13			PQM30001-389102	TENSION SPRING
14			PQ46551B	REEL DISK ASSEMBLY (SUPPLY)
15			PQ35436	SLIT DISK (SUPPLY)
16			PQ35437	SLIT DISK (TAKE UP)
17			PQM30018-79	SPACER,X2
18			PQM30003-38	BELT (CAPSTAN)
19			PQ46497B-2	PULLEY ASSY
21			PQ46562B	REEL ASSEMBLY (TAKE UP)
22			PQM30018-69	SPACER
23			PQ46312C-15	IDLER ARM ASSEMBLY
24			PQ46316C-6	CLUTCH UNIT (SUPPLY)
25			PQ46323A-1	CLUTCH UNIT (TAKE UP)
26			PQ46325C-9	GUIDE ARM ASSEMBLY
27			PQ46326-2	TORSION SPRING
28			PQ46327A-4	PINCH ROLLER ARM ASSEMBLY
29			PQM30017-24	SLIT WASHER,P LEVER
30			PEHE0182	AUDIO CONTROL HEAD
31			PQ35206-1-3	HEAD BASE
32			PQ43687A	SCREW,X3
33			PQM30002-192	COMPRESSION SPRING,X3
34			SDSP2604Z	SCREW,X2
35			PQ46595B-5	POLE BASE ASSEMBLY (SUPPLY)
36			PQ46331C	POLE BASE ASSEMBLY (TAKE UP)
37			PQ46332B-3	LOADING ARM ASSEMBLY (SUPPLY)
38			PQ46337C	LOADING ARM ASSEMBLY (TAKE UP)
39			PQ11657-1-9	GUIDE RAIL
40			SPST2608Z	SCREW,X5
41			SDST2612Z	SCREW
42			LP20003-001A	CONTROL CAM
43			PQ35138-1-2	CONTROL BRACKET
45			LP10004-001C	CONTROL PLATE
46			PQM30017-8	SLIT WASHER
47			PQ21685-2-10	PINCH PLATE
48			SPST2606Z	SCREW
49			SPSF2608M	SCREW
50			PQ46342D-10	LEVER ASSEMBLY
51			PQM30017-8	SLIT WASHER
53			PQM30017-47	SLIT WASHER,X2
55			PQ35026-1-7	IDLER LEVER
56			PQ11659-1-14	SLIDE PLATE
57			LP40014-001A	CHANGE LEVER ASSEMBLY
58			PQ21686-1-3	TAKE UP LEVER
59			PQ46345-1-2	TAKE UP HEAD
△ 61			PU60628-3-2	LOADING MOTOR
62			SPSP3003Z	SCREW,X2

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
63			PW30101-80AJ632	WIRE ASSY
64			LP30005-002A	BELT
65			PQ46395B	WORM GEAR ASSEMBLY
66			PQ21699-1-2	WORM BEARING
△ 68			PU61487-2-3	CAPSTAN MOTOR
69			PQ46347D-17	SUB DECK ASSEMBLY
70			SPSG2608Z	SCREW,X3
71			PQ46356C-4	CAPSTAN BRAKE ASSEMBLY
72			SPST2606Z	SCREW,X2
73			PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
74			PQ46353A-2	CHANGE ARM ASSEMBLY
75			PQ46354	CHANGE GEAR
77			PQM30003-40	BELT
78			LP40008-001B	CASSETTE GEAR
79			PQ35030-1-5	LID GUIDE
80			LP20032-001A	LED PRISM
81			PEHE0237	FULL ERASE HEAD
82			SDST2610Z	SCREW
83			PU61432-1-1	ROTARY ENCODER
86			PQ43546-1-2	MOTOR PULLEY
91			SDSP2604Z	SCREW
95			PQ46767-1-2	GUIDE CAP
99			PQ21680L-23	MAIN DECK ASSEMBLY

## 5.4 ELECTRICAL PARTS LIST

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
*****			
<b>MAIN BOARD ASSEMBLY &lt;03&gt;</b>			
PW1		PB11079D1	MAIN BOARD ASSY
IC1		HA118204F	IC
		or HA118214F	IC
IC2		MSM7476-76MS-XE	IC
IC101		LA7416	IC
IC401		AN3664NFB	IC
IC501		LA7257	IC
IC601		BA15218	IC
IC701		M37774M9H266GP	IC
		or M37774E9A266GP	IC
IC702		X24C04P	IC
		or 24LC04B/P	IC
		or AT24C04-10PC	IC
		or XL24C04P	IC
IC703		TA7291S	IC
IC704		S-80742AN-D6-X	IC
IC801		BA10393F	IC
IC901		S-81252HG	IC
IC902		BA10393	IC
		or M5233P	IC
		or UPC393C	IC
IC1301		LC74783-9179	IC (OSD)
Q1		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q2		2SB1218A/QRS/-X	TRANSISTOR
		or 2PA1576/R/-X	TRANSISTOR
		or 2SA1576A/QRS/-X	TRANSISTOR
Q3		2SB1218A/QRS/-X	TRANSISTOR
		or 2PA1576/R/-X	TRANSISTOR
		or 2SA1576A/QRS/-X	TRANSISTOR
Q18		UN521E	TRANSISTOR
		or DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
Q27		UN511E	TRANSISTOR
		or RN2309	TRANSISTOR
		or DTA144WU	TRANSISTOR
Q28		UN511E	TRANSISTOR
		or RN2309	TRANSISTOR
		or DTA144WU	TRANSISTOR
Q103		UN521E	TRANSISTOR
		or RN1309	TRANSISTOR
		or DTC144WU	TRANSISTOR
Q304		UN511E	TRANSISTOR
		or RN2309	TRANSISTOR
		or DTA144WU	TRANSISTOR
Q305		UN5111	TRANSISTOR
		or RN2302	TRANSISTOR
		or DTA114EU	TRANSISTOR
Q306		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q307		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q308		DTC114EU	TRANSISTOR
		or UN5211	TRANSISTOR

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
		or RN1302	TRANSISTOR
Q309		2SB1218A/QRS/-X	TRANSISTOR
		or 2PA1576/R/-X	TRANSISTOR
		or 2SA1576A/QRS/-X	TRANSISTOR
Q310		2SB1218A/QRS/-X	TRANSISTOR
		or 2PA1576/R/-X	TRANSISTOR
		or 2SA1576A/QRS/-X	TRANSISTOR
Q311		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q401		UN5215	TRANSISTOR
		or DTC114TU	TRANSISTOR
Q402		UN511E	TRANSISTOR
		or RN2309	TRANSISTOR
		or DTA144WU	TRANSISTOR
Q403		UN521E	TRANSISTOR
		or RN1309	TRANSISTOR
		or DTC144WU	TRANSISTOR
Q404		2SA1576A/QRS/-X	TRANSISTOR
		or 2PA1576/R/-X	TRANSISTOR
		or 2SB1218A/QRS/-X	TRANSISTOR
Q405		DTC114EU	TRANSISTOR
		or UN5211	TRANSISTOR
		or RN1302	TRANSISTOR
Q702		2SD1819A/QRS/-X	TRANSISTOR
Q706		LP40038-001A	TAPE SENSOR
Q707		LP40038-001A	TAPE SENSOR
Q710		UN5211	TRANSISTOR
		or RN1302	TRANSISTOR
		or DTC114EU	TRANSISTOR
Q801		DTC114EU	TRANSISTOR
		or RN1302	TRANSISTOR
		or UN5211	TRANSISTOR
Q802		DTC114EU	TRANSISTOR
		or RN1302	TRANSISTOR
		or UN5211	TRANSISTOR
Q803		DTC114EU	TRANSISTOR
		or RN1302	TRANSISTOR
		or UN5211	TRANSISTOR
Q901		UN5111	TRANSISTOR
		or RN2302	TRANSISTOR
		or DTA114EU	TRANSISTOR
Q902		2SB1142/RST/	TRANSISTOR
Q903		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q904		2SB1142/RST/	TRANSISTOR
Q905		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q906		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q907		2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SC4081/QRS/-X	TRANSISTOR
Q908		UN5211	TRANSISTOR
		or RN1302	TRANSISTOR
		or DTC114EU	TRANSISTOR
D1		1N4148M	DIODE
		or 1SS133	DIODE



#	△	REF No.	PART No.	PART NAME, DESCRIPTION		#	△	REF No.	PART No.	PART NAME, DESCRIPTION	
D2			1N4148M	DIODE		R40			QRE141J-271Y	RESISTOR	270Ω,1/4W
			or 1SS133	DIODE		R42			NRSA02J-0R0X	RESISTOR	0Ω,1/10W
D301			1N4148M	DIODE		R44			NRSA02J-102X	RESISTOR	1kΩ,1/10W
			or 1SS133	DIODE		R45			NRSA02J-0R0X	RESISTOR	0Ω,1/10W
D402			11ES2	DIODE		R50			NRSA02J-102X	RESISTOR	1kΩ,1/10W
D701			SIR-381SB3FM	LE DIODE		R53			NRSA02J-562X	RESISTOR	5.6kΩ,1/10W
			or SIR-381SB3FX1M	LE DIODE		R68			NRSA02J-224X	RESISTOR	220kΩ,1/10W
D702			1N4148M	DIODE		R71			NRSA02J-103X	RESISTOR	10kΩ,1/10W
			or 1SS133	DIODE		R101			NRSA02J-562X	RESISTOR	5.6kΩ,1/10W
D802			1N4148M	DIODE		R102			NRSA02J-221X	RESISTOR	220Ω,1/10W
			or 1SS133	DIODE		R105			NRSA02J-823X	RESISTOR	82kΩ,1/10W
D803			1N4148M	DIODE		R106			NRSA02J-273X	RESISTOR	27kΩ,1/10W
			or 1SS133	DIODE		R107			NRSA02J-822X	RESISTOR	8.2kΩ,1/10W
D901			AK04	DIODE		R110			NRSA02J-152X	RESISTOR	1.5kΩ,1/10W
D902			MTZJ6.8A	ZENER DIODE		R111			NRSA02J-273X	RESISTOR	27kΩ,1/10W
			or RD6.8ES/B1/-T2	ZENER DIODE		R115			NRSA02J-224X	RESISTOR	220kΩ,1/10W
			or UZ6.8BSA	ZENER DIODE		R116			NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
D903			MTZJ6.8A	ZENER DIODE		R301			NRSA02J-153X	RESISTOR	15kΩ,1/10W
			or RD6.8ES/B1/-T2	ZENER DIODE		R302			NRSA02J-471X	RESISTOR	470Ω,1/10W
			or UZ6.8BSA	ZENER DIODE		R303			NRSA02J-121X	RESISTOR	120Ω,1/10W
D904			AK04	DIODE		R305			NRSA02J-223X	RESISTOR	22kΩ,1/10W
D905			MTZJ6.2A	ZENER DIODE		R306			NRSA02J-181X	RESISTOR	180Ω,1/10W
			or RD6.2ES/B1/-T2	ZENER DIODE		R307			NRSA02J-682X	RESISTOR	6.8kΩ,1/10W
			or UZ6.2BSA	ZENER DIODE		R308			NRSA02J-224X	RESISTOR	220kΩ,1/10W
D906			AK04	DIODE		R313			NRSA02J-103X	RESISTOR	10kΩ,1/10W
D908			UZ5.6BSB	ZENER DIODE		R314			NRSA02J-103X	RESISTOR	10kΩ,1/10W
			or MTZJ5.6B	ZENER DIODE		R316			NRSA02J-153X	RESISTOR	15kΩ,1/10W
			or RD5.6ES/B2/-T2	ZENER DIODE		R317			NRSA02J-472X	RESISTOR	4.7kΩ,1/10W
D1105			1SS355	DIODE		R318			NRSA02J-472X	RESISTOR	4.7kΩ,1/10W
D1303			1N4148M	DIODE		R319			NRSA02J-103X	RESISTOR	10kΩ,1/10W
			or 1SS133	DIODE		R320			NRSA02J-221X	RESISTOR	220Ω,1/10W
D1304			1N4148M	DIODE		R322			NRSA02J-103X	RESISTOR	10kΩ,1/10W
			or 1SS133	DIODE		R323			NRSA02J-221X	RESISTOR	220Ω,1/10W
R1			QRE141J-123Y	RESISTOR	12kΩ,1/4W	R331			NRSA02J-183X	RESISTOR	18kΩ,1/10W
R2			NRSA02J-203X	RESISTOR	20kΩ,1/10W	R332			NRSA02J-473X	RESISTOR	47kΩ,1/10W
R3			QRE141J-393Y	RESISTOR	39kΩ,1/4W	R333			NRSA02J-183X	RESISTOR	18kΩ,1/10W
R4			NRSA02J-103X	RESISTOR	10kΩ,1/10W	R334			NRSA02J-473X	RESISTOR	47kΩ,1/10W
R5			NRSA02J-561X	RESISTOR	560Ω,1/10W	R335			NRSA02J-3R3X	RESISTOR	3.3Ω,1/10W
R6			NRSA02J-821X	RESISTOR	820Ω,1/10W	R336			NRSA02J-123X	RESISTOR	12kΩ,1/10W
R7			NRSA02J-0R0X	RESISTOR	0Ω,1/10W	R337			NRSA02J-820X	RESISTOR	82Ω,1/10W
R8			NRSA02J-102X	RESISTOR	1kΩ,1/10W	R338			NRSA02J-472X	RESISTOR	4.7kΩ,1/10W
R9			NRSA02J-273X	RESISTOR	27kΩ,1/10W	R403			NRSA02J-0R0X	RESISTOR	0Ω,1/10W
R10			NRSA02J-223X	RESISTOR	22kΩ,1/10W	R407			NRSA02J-393X	RESISTOR	39kΩ,1/10W
R11			NRSA02J-153X	RESISTOR	15kΩ,1/10W	R411			NRSA02J-183X	RESISTOR	18kΩ,1/10W
R12			NRSA02J-472X	RESISTOR	4.7kΩ,1/10W	R412			NRSA02J-472X	RESISTOR	4.7kΩ,1/10W
R13			NRSA02J-152X	RESISTOR	1.5kΩ,1/10W	R413			NRSA02J-511X	RESISTOR	510Ω,1/10W
R14			NRSA02J-682X	RESISTOR	6.8kΩ,1/10W	R416			NRSA02J-472X	RESISTOR	4.7kΩ,1/10W
R15			NRSA02J-682X	RESISTOR	6.8kΩ,1/10W	R417			NRSA02J-511X	RESISTOR	510Ω,1/10W
R16			NRSA02J-393X	RESISTOR	39kΩ,1/10W	R418			NRSA02J-183X	RESISTOR	18kΩ,1/10W
R17			NRSA02J-153X	RESISTOR	15kΩ,1/10W	R422			NRSA02J-393X	RESISTOR	39kΩ,1/10W
R18			NRSA02J-103X	RESISTOR	10kΩ,1/10W	R426			NRSA02J-102X	RESISTOR	1kΩ,1/10W
R19			NRSA02J-0R0X	RESISTOR	0Ω,1/10W	R427			NRSA02J-271X	RESISTOR	270Ω,1/10W
R20			QRE123J-331X	RESISTOR	330Ω,1/2W	R428			NRSA02J-221X	RESISTOR	220Ω,1/10W
R21			NRSA02J-750X	RESISTOR	75Ω,1/10W	R429			NRSA02J-221X	RESISTOR	220Ω,1/10W
R22			NRSA02J-750X	RESISTOR	75Ω,1/10W	R430			NRSA02J-103X	RESISTOR	10kΩ,1/10W
R23			NRSA02J-750X	RESISTOR	75Ω,1/10W	R431			NRSA02J-221X	RESISTOR	220Ω,1/10W
R31			NRSA02J-155X	RESISTOR	1.5MΩ,1/10W	R432			NRSA02J-221X	RESISTOR	220Ω,1/10W
R33			NRSA02J-223X	RESISTOR	22kΩ,1/10W	R439			NRSA02J-103X	RESISTOR	10kΩ,1/10W
R34			NRSA02J-183X	RESISTOR	18kΩ,1/10W	R440			NRSA02J-473X	RESISTOR	47kΩ,1/10W
R35			NRSA02J-0R0X	RESISTOR	0Ω,1/10W	R501			NRSA02J-102X	RESISTOR	1kΩ,1/10W
R39			NRSA02J-182X	RESISTOR	1.8kΩ,1/10W	R503			NRSA02J-223X	RESISTOR	22kΩ,1/10W

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	#	△ REF No.	PART No.	PART NAME, DESCRIPTION
R506		NRSA02J-152X	RESISTOR 1.5kΩ,1/10W	R776		NRSA02J-472X	RESISTOR 4.7kΩ,1/10W
R507		NRSA02J-681X	RESISTOR 680Ω,1/10W	R782		QRE141J-333Y	RESISTOR 33kΩ,1/4W
R508		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R783		QRE141J-333Y	RESISTOR 33kΩ,1/4W
R601		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R784		NRSA02J-105X	RESISTOR 1MΩ,1/10W
R602		NRSA02J-471X	RESISTOR 470Ω,1/10W	R785		NRSA02J-475X	RESISTOR 4.7MΩ,1/10W
R603		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R787		NRSA02J-104X	RESISTOR 100kΩ,1/10W
R604		NRSA02J-104X	RESISTOR 100kΩ,1/10W	R788		NRSA02J-101X	RESISTOR 100Ω,1/10W
R605		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R789		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R606		NRSA02J-104X	RESISTOR 100kΩ,1/10W	R790		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R607		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R792		NRSA02J-273X	RESISTOR 27kΩ,1/10W
R608		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R793		NRSA02J-273X	RESISTOR 27kΩ,1/10W
R609		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R794		NRSA02J-392X	RESISTOR 3.9kΩ,1/10W
R610		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R801		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R611		NRSA02J-104X	RESISTOR 100kΩ,1/10W	R802		NRSA02J-272X	RESISTOR 2.7kΩ,1/10W
R612		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R803		QRE141J-102Y	RESISTOR 1kΩ,1/4W
R613		NRSA02J-104X	RESISTOR 100kΩ,1/10W	R804		QRE141J-102Y	RESISTOR 1kΩ,1/4W
R614		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R805		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R616		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R806		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R703		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R808		NRSA02J-474X	RESISTOR 470kΩ,1/10W
R704		QRE141J-102Y	RESISTOR 1kΩ,1/4W	R809		QRE141J-103Y	RESISTOR 10kΩ,1/4W
R705		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R811		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R708		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R812		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R709		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R813		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R711		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R814		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R712		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R815		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R713		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R816		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R714		NRSA02J-0R0X	RESISTOR 0Ω,1/10W	R817		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R715		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R818		NRSA02J-822X	RESISTOR 8.2kΩ,1/10W
R716		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R819		NRSA02J-822X	RESISTOR 8.2kΩ,1/10W
R720		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R820		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R722		QRE141J-102Y	RESISTOR 1kΩ,1/4W	R821		NRSA02J-221X	RESISTOR 220Ω,1/10W
R723		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R823		NRSA02J-104X	RESISTOR 100kΩ,1/10W
R724		QRE141J-102Y	RESISTOR 1kΩ,1/4W	R824		NRSA02J-104X	RESISTOR 100kΩ,1/10W
R725		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R825		NRSA02J-223X	RESISTOR 22kΩ,1/10W
R727		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R826		NRSA02J-331X	RESISTOR 330Ω,1/10W
R728		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R827		NRSA02J-0R0X	RESISTOR 0Ω,1/10W
R729		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R829		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R730		QRE141J-102Y	RESISTOR 1kΩ,1/4W	R831		NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
R739		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R833		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R740		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R834		NRSA02J-104X	RESISTOR 100kΩ,1/10W
R741		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R835		NRSA02J-104X	RESISTOR 100kΩ,1/10W
R742		QRE141J-562Y	RESISTOR 5.6kΩ,1/4W	R836		NRSA02J-474X	RESISTOR 470kΩ,1/10W
R745		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R837		NRSA02J-183X	RESISTOR 18kΩ,1/10W
R750		QRE141J-102Y	RESISTOR 1kΩ,1/4W	R839		NRSA02J-333X	RESISTOR 33kΩ,1/10W
R751		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R840		NRSA02J-333X	RESISTOR 33kΩ,1/10W
R752		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R841		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R753		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R842		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R755		NRSA02J-471X	RESISTOR 470Ω,1/10W	R843		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R756		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R844		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R757		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R845		QRE141J-102Y	RESISTOR 1kΩ,1/4W
R758		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R846		QRE141J-102Y	RESISTOR 1kΩ,1/4W
R759		NRSA02J-472X	RESISTOR 4.7kΩ,1/10W	R847		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R762		NRSA02J-333X	RESISTOR 33kΩ,1/10W	R902		NRSA02J-471X	RESISTOR 470Ω,1/10W
R763		NRSA02J-333X	RESISTOR 33kΩ,1/10W	R903		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R764		NRSA02J-333X	RESISTOR 33kΩ,1/10W	R904		NRSA02J-102X	RESISTOR 1kΩ,1/10W
R766		QRE141J-750Y	RESISTOR 75Ω,1/4W	R905		NRSA02J-103X	RESISTOR 10kΩ,1/10W
R769		NRSA02J-181X	RESISTOR 180Ω,1/10W	R906		NRSA02J-472X	RESISTOR 4.7kΩ,1/10W
R770		NRSA02J-181X	RESISTOR 180Ω,1/10W	R907		NRSA02J-334X	RESISTOR 330kΩ,1/10W
R771		QRE141J-103Y	RESISTOR 10kΩ,1/4W	R908		NRSA02J-100X	RESISTOR 10Ω,1/10W
R772		NRSA02J-102X	RESISTOR 1kΩ,1/10W	R909		NRSA02J-122X	RESISTOR 1.2kΩ,1/10W
R774		NRSA02J-103X	RESISTOR 10kΩ,1/10W	R910		NRSA02J-223X	RESISTOR 22kΩ,1/10W

#	△	REF No.	PART No.	PART NAME, DESCRIPTION *	#	△	REF No.	PART No.	PART NAME, DESCRIPTION
R911			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C18			NCB21EK-223X	CAPACITOR 0.022μF,25V
R912			NRSA02J-222X	RESISTOR 2.2kΩ,1/10W	C19			NCB21EK-683X	CAPACITOR 0.068μF,25V
R913			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C20			NCB21EK-333X	CAPACITOR 0.033μF,25V
R914			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C21			NCB21HK-103X	CAPACITOR 0.01μF,50V
R915			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C22			NCB21EK-104X	CAPACITOR 0.1μF,25V
R916			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C23			QEKJ0JM-476	E CAPACITOR 47μF,6.3V
R917			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C24			NCB21EK-104X	CAPACITOR 0.1μF,25V
R918			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C25			QEKJ1HM-105	E CAPACITOR 1μF,50V
R919			NRSA02J-472X	RESISTOR 4.7kΩ,1/10W	C28			NCB21HK-103X	CAPACITOR 0.01μF,50V
R920			NRSA02J-154X	RESISTOR 150kΩ,1/10W	C29			QEKJ1CM-106	E CAPACITOR 10μF,16V
R921			NRSA02J-100X	RESISTOR 10Ω,1/10W	C30			QEKJ1HM-104	E CAPACITOR 0.1μF,50V
R922			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C31			NCB21EK-104X	CAPACITOR 0.1μF,25V
R923			NRSA02J-153X	RESISTOR 15kΩ,1/10W	C32			QEKJ1HM-335	E CAPACITOR 3.3μF,50V
R924			NRSA02J-222X	RESISTOR 2.2kΩ,1/10W	C33			NCB21HK-103X	CAPACITOR 0.01μF,50V
R925			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C34			NCB21EK-104X	CAPACITOR 0.1μF,25V
R927			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C35			NCB21CK-224X	CAPACITOR 0.22μF,16V
R930			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C36			NDC21HJ-330X	CAPACITOR 33pF,50V
R931			QRZ9005-330X	FUSIBLE RESISTOR 33Ω,1/4W	C37			NCB21EK-104X	CAPACITOR 0.1μF,25V
R932			QRE141J-221Y	RESISTOR 220Ω,1/4W	C38			NDC21HJ-151X	CAPACITOR 150pF,50V
R1101			NRSA02J-222X	RESISTOR 2.2kΩ,1/10W	C39			NDC21HJ-150X	CAPACITOR 15pF,50V
R1102			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C41			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1104			QRE141J-102Y	RESISTOR 1kΩ,1/4W	C42			NDC21HJ-390X	CAPACITOR 39pF,50V
R1105			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C43			NCB21EK-104X	CAPACITOR 0.1μF,25V
R1106			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C44			QEKJ0JM-476	E CAPACITOR 47μF,6.3V
R1107			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C45			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1108			QRE141J-102Y	RESISTOR 1kΩ,1/4W	C46			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1109			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C47			QEKJ1CM-476	E CAPACITOR 47μF,16V
R1110			NRSA02J-471X	RESISTOR 470Ω,1/10W	C48			QETC0JM-477	E CAPACITOR 470μF,6.3V
R1111			NRSA02J-471X	RESISTOR 470Ω,1/10W	C54			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1112			NRSA02J-153X	RESISTOR 15kΩ,1/10W	C55			QEKJ1CM-106	E CAPACITOR 10μF,16V
R1113			NRSA02J-471X	RESISTOR 470Ω,1/10W	C56			NDC21HJ-101X	CAPACITOR 100pF,50V
R1115			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C60			NDC21HJ-120X	CAPACITOR 12pF,50V
R1116			NRSA02J-104X	RESISTOR 100kΩ,1/10W	C63			NCB21HK-822X	CAPACITOR 0.0082μF,50V
R1117			NRSA02J-104X	RESISTOR 100kΩ,1/10W	C65			NDC21HJ-221X	CAPACITOR 220pF,50V
R1118			QRE141J-102Y	RESISTOR 1kΩ,1/4W	C78			NDC21HJ-151X	CAPACITOR 150pF,50V
R1119			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C101			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1120			NRSA02J-102X	RESISTOR 1kΩ,1/10W	C103			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1121			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C104			NCB21HK-222X	CAPACITOR 0.0022μF,50V
R1125			NRSA02J-222X	RESISTOR 2.2kΩ,1/10W	C105			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1301			NRSA02J-222X	RESISTOR 2.2kΩ,1/10W	C106			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1305			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C107			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1307			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C109			QEKJ1CM-476	E CAPACITOR 47μF,16V
R1309			NRSA02J-103X	RESISTOR 10kΩ,1/10W	C113			NCB21HK-103X	CAPACITOR 0.01μF,50V
R1311			NRSA02J-151X	RESISTOR 150Ω,1/10W	C114			NCB21EK-104X	CAPACITOR 0.1μF,25V
R1312			NRSA02J-562X	RESISTOR 5.6kΩ,1/10W	C115			NCB21HK-103X	CAPACITOR 0.01μF,50V
C1			NCB21HK-103X	CAPACITOR 0.01μF,50V	C116			NCB21EK-104X	CAPACITOR 0.1μF,25V
C3			NCB21EK-104X	CAPACITOR 0.1μF,25V	C117			NCB21EK-104X	CAPACITOR 0.1μF,25V
C4			NCB21HK-103X	CAPACITOR 0.01μF,50V	C118			NCB21HK-103X	CAPACITOR 0.01μF,50V
C5			NCB21HK-103X	CAPACITOR 0.01μF,50V	C119			NCB21EK-104X	CAPACITOR 0.1μF,25V
C6			QEKJ1CM-106	E CAPACITOR 10μF,16V	C301			QEKJ1HM-105	E CAPACITOR 1μF,50V
C7			NCB21HK-103X	CAPACITOR 0.01μF,50V	C302			QFV91HJ-123	F CAPACITOR 0.012μF,50V
C8			NDC21HJ-331X	CAPACITOR 330pF,50V	C303			QFV91HJ-473	F CAPACITOR 0.047μF,50V
C9			QEKJ0JM-476	E CAPACITOR 47μF,6.3V	C306			NCB21HK-182X	CAPACITOR 0.0018μF,50V
C10			QDYB1CM-103Y	CAPACITOR 0.01μF,16V	C307			QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C11			QEKJ1HM-335	E CAPACITOR 3.3μF,50V	C308			QEKJ1AM-226	E CAPACITOR 22μF,10V
C12			QEKJ1HM-225	E CAPACITOR 2.2μF,50V	C309			NCB21HK-153X	CAPACITOR 0.015μF,50V
C13			NCB21HK-472X	CAPACITOR 0.0047μF,50V	C310			QEKJ1EM-475	E CAPACITOR 4.7μF,25V
C14			NCB21HK-271X	CAPACITOR 270pF,50V	C312			NCB21EK-683X	CAPACITOR 0.068μF,25V
C15			NDC21HJ-820X	CAPACITOR 82pF,50V	C313			QEKJ1HM-105	E CAPACITOR 1μF,50V
C16			QEKJ1HM-225	E CAPACITOR 2.2μF,50V	C314			NCB21HK-152X	CAPACITOR 0.0015μF,50V
C17			QEKJ1HM-474	E CAPACITOR 0.47μF,50V	C315			QEKJ1EM-475	E CAPACITOR 4.7μF,25V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION		#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
C331		NCB21EK-223X	CAPACITOR	0.022μF,25V	C731		NDC21HJ-330X	CAPACITOR	33pF,50V
C332		NCB21HK-472X	CAPACITOR	0.0047μF,50V	C732		NDC21HJ-330X	CAPACITOR	33pF,50V
C333		QEKJ1CM-106	E CAPACITOR	10μF,16V	C733		NCB21HK-103X	CAPACITOR	0.01μF,50V
C334		QCB1HJ-331	CAPACITOR	330pF,50V	C743		NCB21EK-104X	CAPACITOR	0.1μF,25V
C335		QFV91HJ-823	F CAPACITOR	0.082μF,50V	C744		NCB21EK-104X	CAPACITOR	0.1μF,25V
C402		QEKJ1AM-226	E CAPACITOR	22μF,10V	C801		NCB21HK-103X	CAPACITOR	0.01μF,50V
C406		QEKJ1HM-105	E CAPACITOR	1μF,50V	C802		QEKJ1CM-106	E CAPACITOR	10μF,16V
C407		NCB21EK-473X	CAPACITOR	0.047μF,25V	C803		QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C408		QEKJ1CM-336	E CAPACITOR	33μF,16V	C804		QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C409		QEKJ1HM-225	E CAPACITOR	2.2μF,50V	C805		QDYB1CN-103Y	CAPACITOR	0.01μF,16V
C410		QEKJ1CM-476	E CAPACITOR	47μF,16V	C901		QEMT1CM-158	E CAPACITOR	1500μF,16V
C411		NCB21HK-153X	CAPACITOR	0.015μF,50V	C903		QEKJ1CM-106	E CAPACITOR	10μF,16V
C412		NCB21HK-103X	CAPACITOR	0.01μF,50V	C904		NCB21HK-103X	CAPACITOR	0.01μF,50V
C413		NCB21HK-103X	CAPACITOR	0.01μF,50V	C905		NCB21HK-103X	CAPACITOR	0.01μF,50V
C414		QEKJ1HM-224	E CAPACITOR	0.22μF,50V	C906		QETL0JM-478	E CAPACITOR	4700μF,6.3V
C416		NCB21HK-103X	CAPACITOR	0.01μF,50V	C907		QETC1CM-476	E CAPACITOR	47μF,16V
C417		NCB21HK-153X	CAPACITOR	0.015μF,50V	C908		NCB21HK-392X	CAPACITOR	0.0039μF,50V
C418		QEKJ1CM-476	E CAPACITOR	47μF,16V	C909		QEMT0JM-128	E CAPACITOR	1200μF,6.3V
C419		QEKJ1HM-225	E CAPACITOR	2.2μF,50V	C910		QEMT0JM-128	E CAPACITOR	1200μF,6.3V
C420		NCB21EK-473X	CAPACITOR	0.047μF,25V	C911		QETC1CM-476	E CAPACITOR	47μF,16V
C421		QEKJ1CM-336	E CAPACITOR	33μF,16V	C912		NCB21HK-472X	CAPACITOR	0.0047μF,50V
C422		QEKJ1HM-105	E CAPACITOR	1μF,50V	C913		QEMT1CM-827	E CAPACITOR	820μF,16V
C426		QEKJ1HM-224	E CAPACITOR	0.22μF,50V	C914		NDC21HJ-101X	CAPACITOR	100pF,50V
C427		QEKJ1CM-476	E CAPACITOR	47μF,16V	C915		QETC1CM-476	E CAPACITOR	47μF,16V
C429		QEKJ1CM-106	E CAPACITOR	10μF,16V	C916		QETC1CM-476	E CAPACITOR	47μF,16V
C430		QEKJ1CM-106	E CAPACITOR	10μF,16V	C917		QETC1CM-107	E CAPACITOR	100μF,16V
C431		QEKJ1CM-106	E CAPACITOR	10μF,16V	C918		NCB21HK-102X	CAPACITOR	0.001μF,50V
C436		NCF21EZ-104X	CAPACITOR	0.1μF,25V	C919		NCF21EZ-104X	CAPACITOR	0.1μF,25V
C501		NCB21HK-103X	CAPACITOR	0.01μF,50V	C920		QETC1CM-476	E CAPACITOR	47μF,16V
C502		NCF21EZ-104X	CAPACITOR	0.1μF,25V	C921		NCF21EZ-104X	CAPACITOR	0.1μF,25V
C503		NCB21HK-103X	CAPACITOR	0.01μF,50V	C1101		NCB21EK-104X	CAPACITOR	0.1μF,25V
C504		NCF21EZ-104X	CAPACITOR	0.1μF,25V	C1102		QEKJ1HM-474	E CAPACITOR	0.47μF,50V
C505		QEKJ0JM-107	E CAPACITOR	100μF,6.3V	C1104		QEKJ1CM-226	E CAPACITOR	22μF,16V
C506		NCB21EK-104X	CAPACITOR	0.1μF,25V	C1105		QEPF1HM-105	NP E CAPACITOR	1μF,50V
C507		NCB21HK-563X	CAPACITOR	0.056μF,50V	C1106		QEPF1HM-105	NP E CAPACITOR	1μF,50V
C508		NCB21HK-221X	CAPACITOR	220pF,50V	C1107		NCB21HK-273X	CAPACITOR	0.027μF,50V
C509		NCB21HK-102X	CAPACITOR	0.001μF,50V	C1109		NCB21HK-102X	CAPACITOR	0.001μF,50V
C510		NCB21HK-103X	CAPACITOR	0.01μF,50V	C1112		NCB21EK-563X	CAPACITOR	0.056μF,25V
C511		NCB21HK-102X	CAPACITOR	0.001μF,50V	C1113		NCB21HK-102X	CAPACITOR	0.001μF,50V
C512		NCB21HK-103X	CAPACITOR	0.01μF,50V	C1114		NDC21HJ-101X	CAPACITOR	100pF,50V
C602		NCB21CK-104X	CAPACITOR	0.1μF,16V	C1115		NDC21HJ-101X	CAPACITOR	100pF,50V
C603		QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C1302		QEKJ1HM-105	E CAPACITOR	1μF,50V
C604		QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C1303		QEKJ1HM-105	E CAPACITOR	1μF,50V
C605		QEKJ1CM-476	E CAPACITOR	47μF,16V	C1304		QERF0JM-476	E CAPACITOR	47μF,6.3V
C606		QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C1305		NCB21HK-103X	CAPACITOR	0.01μF,50V
C607		QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C1306		NCB21HK-103X	CAPACITOR	0.01μF,50V
C702		NCB21HK-103X	CAPACITOR	0.01μF,50V	C1307		NDC21HJ-390X	CAPACITOR	39pF,50V
C703		QETC1CM-106	E CAPACITOR	10μF,16V	C1308		NDC21HJ-390X	CAPACITOR	39pF,50V
C707		QEKJ1CM-106	E CAPACITOR	10μF,16V	C1309		NCB21HK-103X	CAPACITOR	0.01μF,50V
C709		NCB21HK-103X	CAPACITOR	0.01μF,50V	C1310		NDC21HJ-680X	CAPACITOR	68pF,50V
C711		NDC21HJ-100X	CAPACITOR	10pF,50V	C1311		NCB21HK-103X	CAPACITOR	0.01μF,50V
C712		NDC21HJ-100X	CAPACITOR	10pF,50V	L1		QQL29BJ-2R2Z	COIL	2.2μH
C713		QCB1HJ-101	CAPACITOR	100pF,50V	L2		QQL29BJ-150Z	COIL	15μH
C714		QCB1HJ-101	CAPACITOR	100pF,50V	L3		QQL29BJ-6R8Z	COIL	6.8μH
C715		NCB21HK-103X	CAPACITOR	0.01μF,50V	L4		QQL29BJ-101Z	COIL	100μH
C716		NCB21HK-103X	CAPACITOR	0.01μF,50V	L5		QQL29BJ-101Z	COIL	100μH
C717		NCB21HK-103X	CAPACITOR	0.01μF,50V	L10		QQL29BJ-680Z	COIL	68μH
C723		NCB21EK-104X	CAPACITOR	0.1μF,25V	L12		QQL29BJ-150Z	COIL	15μH
C724		NCB21HK-103X	CAPACITOR	0.01μF,50V	L14		QQL29BJ-471Z	COIL	470μH
C728		NDC21HJ-270X	CAPACITOR	27pF,50V	L101		QQL29BJ-101Z	COIL	100μH
C729		NDC21HJ-270X	CAPACITOR	27pF,50V	L301		QQL25CJ-123Z	COIL	12mH

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	
L501			QQL29BJ-2R2Z	COIL	2.2μH
L701			QQL29BJ-100Z	COIL	10μH
L901			VTC19AG-18AV	COIL	
L902			QQL35BJ-330Z	COIL	33μH
L903			QQL33BK-101	COIL	100μH
L904			QQL35BJ-330Z	COIL	33μH
L905			QQL35BJ-330Z	COIL	33μH
L906			QQL06BK-330	COIL	33μH
L908			QQL35BJ-330Z	COIL	33μH
L1301			QQL29BJ-220Z	COIL	22μH
L1302			QQL29BJ-101Z	COIL	100μH
L1303			QQL29BJ-470Z	COIL	47μH
X2			PEVB0678	CRYSTAL RESONATOR	
X701			PEVB0567	CRYSTAL RESONATOR	
X702			QAX0011-001	CRYSTAL RESONATOR	
S701			PESW0674	PUSH SWITCH,CASSETTE SW	
S702			PESW0589	PUSH SWITCH,REC SAFETY SW	
S1209			QSW0522-002Z	TACT SWITCH	
PS701			SG-246	IC(PHOTO SENSOR)	
PS702			SG-246	IC(PHOTO SENSOR)	
TH803			QAD0098-104	N THERMISTOR	
T301			PELN0832	OSC TRANSFORMER	
J1			PEMC1117	PIN JACK(SW),A/V IN	
J2			PEMC1085	PIN JACK,A/V OUT	
J3			QNN0087-001	PIN JACK,A/V OUT	
J4			QGA4201F2-04	CONNECTOR,DC IN	
J5			PEMC0750	MINI JACK,EXTRC IN	
TB1			LP30151-001B	TERMINAL BOARD ASSY	
OT1			SDST3008Z	SCREW,TERMINAL BOARD	
BK1			LP40065-001B	BRACKET,TERMINAL BOARD	
OT2			SDST3008Z	SCREW,X2 BRACKET	
OT3			SPSF3010M	SCREW,J4	
OT4			LP30002-009A	SPACER,X11	
SD1			PQ35384	SHIELD CASE,PRE/REC	
SD2			PQ46515	SHIELD PLATE,PRE/REC	
FW302			PW30101-Q0AH4W2	WIRE,FE HEAD	
WR301			PW30705-12AAYY	WIRE,(1-4)A/C HEAD CN301	
WR3012			PW30702-12AAYY	WIRE,(5-7)A/C HEAD CN301	
CN1			QGF1015C2-09	CONNECTOR,(1-9)UPPER DRUM	
CN301			QGD2001C1-07	CONNECTOR,(1-7)A/C HEAD	
CN701			QGB2002L1-08	CONNECTOR,(1-8)CAP MDA	
CN702			PU61434-1-1	CONNECTOR,(1-5)ROTARY ENCODER	
CN703			QGD2001C1-02	CONNECTOR,(1-2)LOADING MOTOR	
CN704			QGF1207C1-05	FFC CONNECTOR,(1-5)DRUM MOTOR	
CN801			QGF1208C1-14	FFC CONNECTOR,(1-14)FRONT	
CN802			PU53587-2	CONNECTOR,(1-2)DEW SENSOR	
△ CP701			ICP-N25	CIRCUIT PROTECTOR	
△ CP901			ICP-N25	CIRCUIT PROTECTOR	
△ CP902			ICP-N25	CIRCUIT PROTECTOR	
△ CP1101			ICP-N15	CIRCUIT PROTECTOR	

\*\*\*\*\*

#### AUDIO CONTROL BOARD ASSEMBLY <12>

PW1	PB40068A-01	A/CTL HEAD BOARD ASSEMBLY
CN1	QGD2001F1-07	CONNECTOR,(1-7)MAIN

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	
*****					
FRONT BOARD ASSEMBLY <28>					
PW2			PB11079D2	FRONT BOARD ASSY	
IC1201			GP1U281X	IR DETECT UNIT	
D1203			SLR-342VC3F	LE DIODE,POWER	
R1210			QRE141J-331Y	RESISTOR	330Ω,1/4W
R1211			QRE141J-332Y	RESISTOR	3.3kΩ,1/4W
R1212			QRE141J-332Y	RESISTOR	3.3kΩ,1/4W
C1202			NCB21EK-104X	CAPACITOR	0.1μF,25V
S1208			QSW0456-001Z	TACT SWITCH,EJECT	
S1209			QSW0456-002Z	TACT SWITCH,POWER	
HD1			PQM30038-1-2	LED HOLDER,D1203	
FW1202			PW30123-50AA446	WIRE,LED	
FW1203			PW30101-F0AA442	PARALLEL WIRE,SWITCH	
CN1201			QGF1207F1-14	FFC CONNECTOR,(1-14)MAIN	

\*\*\*\*\*

#### SW BOARD ASSEMBLY <36>

PW4	PB11079D4	SW BOARD ASSY
S1801	QSW0528-001	CAM SWITCH

\*\*\*\*\*

#### LED BOARD ASSEMBLY <90>

PW3	PB11079D3	LED BOARD ASSY	
D1201	SLR-342MG3F	LE DIODE,SP/EP	
D1202	SLR-342VC3F	LE DIODE,REC	
R1201	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R1202	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R1204	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R1205	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R1206	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R1208	QRE141J-331Y	RESISTOR	330Ω,1/4W
R1209	QRE141J-331Y	RESISTOR	330Ω,1/4W
S1201	QSW0456-001Z	TACT SWITCH,SP/EP	
S1202	QSW0456-001Z	TACT SWITCH,STOP	
S1203	QSW0456-001Z	TACT SWITCH,REC	
S1204	QSW0456-001Z	TACT SWITCH,REW	
S1205	QSW0456-001Z	TACT SWITCH,FF	
S1206	QSW0456-001Z	TACT SWITCH,PLAY	
S1207	QSW0456-001Z	TACT SWITCH,PAUSE	



## SECTION 6

### TECHNICAL INFORMATION

#### 6.1 SYSCON CIRCUIT

##### 6.1.1 Syscon CPU pin function (IC701) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	NC	—	NC
2	AUTO REW	IN	AUTO REWIND SET(OFF : L)
3	CAP CTL V	OUT	CAPSTAN MOTOR VOLTAGE DETECT
4	DRUM CTL V	OUT	DRUM MOTOR VOLTAGE DETECT
5	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN DET
6	SP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN DET
7	EE(L)	OUT	EE MODE : L
8	NC	—	NC
9	NC	—	NC
10	A/M/S	OUT	PRE/REC IC CONTROL (AUTO: M/MANUAL: H/S & S: L)
11	RC IN	IN	REMOTE CONTROL DATA INPUT
12	PROTECT	IN	SWD 5 V/12 V DETECT
13	TEST	IN	5 V
14	NC	—	NC
15	HEAD SEL 2	—	NC
16	COL. ROT	IN	COLOR ROTATION CONTROL INPUT
17	ENV COMP	IN	PB ENVELOPE COMPARATER SIGNAL INPUT
18	V. PULSE	OUT	V. PULSE ADDTION TIMING CONTROL
19	REC ST(H)	OUT	NORMAL AUDIO REC START: H
20	RC OUT	—	NC
21	A. FF	OUT	AUDIO FF OUTPUT
22	RC IN2	IN	VIDEO SIGNAL FIELD DETECT
23	TACT SW1	IN	POWER SWITCH INPUT
24	HiFi REC ST(L)	OUT	HiFi AUDIO REC START: L
25	D FF	OUT	VIDEO PB FM (CH-1, CH-2) SWITCHING PULSE
26	AL 5 V	—	5 V
27	COMB OFF(H)	—	NC
28	NC	—	NC
29	LMC 3	OUT	LOADING MOTOR DRIVE (3)
30	CASS SW	IN	CASSETTE TAPE LOAD SWITCH (CASS IN: L)
31	REC SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON: L)
32	LS C	IN	MECHANISM MODE DETECT (C)
33	LS B	IN	MECHANISM MODE DETECT (B)
34	LS A	IN	MECHANISM MODE DETECT (A)
35	GND	—	GND
36	GND	—	GND
37	RESET	—	RESET
38	X IN	—	SYSTEM CLOCK
39	X OUT	—	SYSTEM CLOCK
40	CLK SEL	—	Hi FIXED
41	GND	—	GND
42	XC IN	—	TIMER CLOCK
43	XC OUT	—	TIMER CLOCK
44	LMC 2	OUT	LOADING MOTOR DRIVE (2)
45	LMC 1	OUT	LOADING MOTOR DRIVE (1)
46	DOCTOR	IN	DOCTOR SET
47	NC	—	NC
48	A. MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE ON: H)
49	12C DATA	OUT	EEPROM (IC702) DATA OUTPUT
50	12C CLK	OUT	EEPROM (IC702) DATA TRANSFER CLOCK)

Table 6-1-1 SYSCON CPU pin function(1/2)

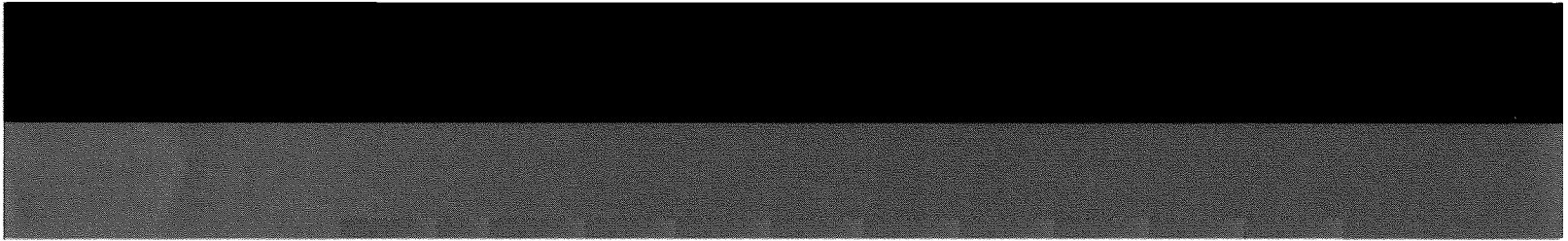
### 6.1.2 Syscon CPU pin function (IC701) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
51	P. MUTE	OUT	PICTURE MUTE CONTROL (MUTE ON: L)
52	MECHA TEST	OUT	MECHANISM TEST MODE OUTPUT
53	P. CTL	OUT	POWER ON/OFF CONTROL (POWER ON: H)
54	EJECT SENSOR	IN	EJECT SENSOR INPUT
55	TACT SW4	IN	EJECT SWITCH INPUT
56	ACC IN 5 V	–	5 V
57	LED1	OUT	POWER LED (POWER ON: L)
58	LED2	OUT	REC LED (REC ON: L)
59	LED3	OUT	SP/EP LED (EP ON: L)
60	SP (L)	OUT	SP MODE: L
61	OSD CS	OUT	ON SCREEN IC CHIP SELECT
62	HEAD SEL	OUT	19u HEAD SELECT CONTROL
63	NC	–	NC
64	REC (H)	OUT	HiFi AUDIO REC MODE: H
65	AMP VCC	–	SYSTEM POWER (for AMP)
66	D. PG IN	IN	DRUM PICKUP PULSE INPUT (SWITCHING PULSE)
67	D. FG IN	IN	DRUM FG PULSE INPUT
68	C. FG IN	IN	CAPSTAN FG INPUT (TAPE SPEED / BACK SPACE COUNT)
69	AMP VREF OUT	OUT	CTL PULSE AMP REFERENCE VOLTAGE
70	(VCC/2)	–	2.5 V
71	CLAMPF	IN	CTL CLAMP CIRCUIT INPUT (POSITIVE PULSE)
72	CLAMPR	IN	CTL CLAMP CIRCUIT INPUT (ENGATIVE PULSE)
73	CTL AMP OUT	OUT	CTL PULSE OUTPUT
74	AMPC	–	CAPACITOR CONNECT TERMINAL for CTL AMP CIRCUIT
75	CTL AMP IN	IN	CTL PULSE INPUT
76	CTL (+) SW	OUT	CTL (+) SIGNAL OUTPUT
77	CTL (+)	IN/OUT	CTL (+) SIGNAL
78	CTL (–)	IN/OUT	CTL (–) SIGNAL
79	CTL Vss	–	Vss
80	GND	–	GND
81	AL 5 V	–	BACKUP 5 V
82	VREF	–	Vcc
83	C	–	NC
84	NC	–	NC
85	END SENSOR	IN	TRAILER TAPE DETECT (DETECT ON: L)
86	TACT SW2	IN	REC, PLAY, STOP SWITCH INPUT
87	TACT SW3	IN	PAUSE, FF, REW, SP/EP SWITCH INPUT
88	DEW SENSOR	–	CONDENSATION SENSOR INPUT
89	ACC V DET	IN	ACC VOLTAGE DETECT
90	AUDIO ENV./ND(L)	IN	AUDIO PB FM INPUT
91	VIDEO ENV.	IN	VIDEO PB FM INPUT
92	START SENSOR	IN	LEADER TAPE DETECT (DETECT ON: L)
93	C.SYNC	IN	COMPOSITE SYNC
94	SSB DATA	OUT	VIDEO AND AUDIO IC CONTROL DATA
95	CAP REV(L)	OUT	CAPSTAN MOTOR CONTROL (FWD: H / REV: L)
96	SSB CLK	OUT	VIDEO AND AUDIO IC DATA TRANSFER CLOCK
97	NC	–	NC
98	S DATA OUT	OUT	ON SCREEN CONTROL DATA OUTPUT
99	S DATA IN	IN	ON SCREEN CONTROL DATA INPUT
100	S CLK	OUT	ON SCREEN DATA TRANSFER CLOCK

Table 6-1-2 SYSCON CPU pin function(2/2)







**JVC**

VICTOR COMPANY OF JAPAN, LIMITED  
AUDIO DIVISION, 10-1, 1Chome, Ohwatari-machi, maebashi-city, 371-8543, Japan